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ABSTRACT

Provided in the manual are 15 units of sequential instructional materials designed to teach blind elementary students to read standard print through the use of the Optacon, an optical-to-tactile converter manufactured by Telesensory Systems, Inc. The materials allow for individualized rate of student progress, integration of numeral and letter drill with the reading of meaningful sentence material, diagnostic/prescriptive teaching, student decision making, a variety of reading experiences, and continuous monitoring of student achievement. Each unit contains line by line or lesson by lesson instructions for the teacher followed by instructional material to be used by the student. Many units are concluded by criterion exercises. Content areas of the 15 units include equipment introduction, numeral recognition, upper and lower case letter recognition, and word attack skills. (CL)

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ED119403

OPTACON INSTRUCTIONAL MATERIALS

(Elementary Level, Grades 4-8)

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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Azuza Unified School District, California
Berkeley Unified School District, California
Campbell Union Elementary School District, California
Campbell High School District, California
Chula Vista City School District, California
Cincinnati Public Schools, Ohio
Florida School for the Deaf and the Blind, Florida
Houston Independent School District, Texas
Logan School, Pennsylvania
Overbrook School for the Blind, Pennsylvania
Palo Alto Unified School District, California
Perkins School for the Blind, Massachusetts
Salem Public Schools, Oregon
San Diego Unified School District, California
Tulare County Department of Education, Visalia, California

In the early stages of materials development, we appreciated the continued cooperation of the pilot students and their parents, who regularly travelled to AIR for work on the Optacon after the normal school day was done.

Finally, we would like to acknowledge our gratitude for the pleasant working relationship that we enjoyed with the USOE Project Officer, Dr. Max Mueller, Bureau of Education for the Handicapped. Without his continued support these revised materials could not have been made available.

RAW

Goals and Objectives

The broad goal of the American Institutes for Research/Optacon instructional materials package is to provide an interesting, efficient, and educationally sound framework at the elementary and secondary levels by which blind students can learn to read standard print via the Optacon, an optical-to-tactile converter manufactured by Telesensory Systems, Inc.*

By using these materials the teacher will be able to:

- allow each student to progress at his own rate;
- integrate drill and practice of numerals and letters with the reading of meaningful material in sentence form;
- diagnose particular learning difficulties and prescribe appropriate learning activities within the materials;
- give the student a role in deciding when he wants to assume independence in tracking and other equipment operation skills;
- provide a variety of reading experiences for the student, including alternative typefaces, formats and subject matter;
- monitor the progress of the student on a unit-by-unit basis as well as at the end of the course.

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*Telesensory Systems, Inc., 1889 Page Mill Road, Palo Alto, California 94304.

These instructional materials are the product of a research study* to evaluate the educational potential of the Optacon in the elementary and secondary grades. As such, they have been systematically developed to build upon the knowledge and experience of many sources and individuals.

Initially, a comprehensive review of existing instructional strategies for the teaching of reading was undertaken, with a number of nationally prominent approaches being examined in detail to determine what rationales and techniques might be applicable and feasible in the research study.

Second, the developers were afforded an opportunity to study the approaches employed in prior materials developed for use with the Optacon, including those developed by the manufacturers of the Optacon, Telesensory Systems, Inc., and those developed by Mr. Gale Lutz, San Diego Unified Schools, during a Title VI project.

Third, the proposed instructional strategy was laid before a panel of experts representing the fields of research and instructional design, special education, and remedial reading. Valuable inputs were obtained from:

> Dr. Robert Gagné, Florida State University, past President of the American Educational Research Association and author of numerous major papers and texts on the optimization of learning.
>
> Professor Philip Hatlen, San Francisco State University, nationally prominent leader in the training of teachers of the blind and co-author of the text Blind Children Learn to Read.
>
> Professor Mary Herman, San Francisco State University, specialist in the teaching of reading, particularly remedial reading, and joint appointee in special education at the University.

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*Weisgerber, R.A., Crawford, J.J., Everett, B.E., Lalush, S.E., & Rodabaugh, B.J. Educational evaluation of the Optacon (optical-to-tactile converter) as a reading aid to blind elementary and secondary students. Interim Technical Report, Phase I. Palo Alto, Calif.: American Institutes for Research, September 1973. (AIR-34500-9/73-ITR)

As the initial set of instructional materials were created they were tried out with pilot students, at the elementary and secondary levels, who were unfamiliar with the Optacon. They were also checked with students who were familiar with the device.

Finally, the present instructional materials were revised to take into account the learning experiences of over 81 students who were involved in the research study during the first year as well as comments and suggestions of their teachers. These participants were in some 15 residential schools or public school districts.

Although the research project is now completed, these materials are being made available to districts that are instituting courses of instruction in the Optacon. It should be pointed out that in order to be successful, such programs require resources in addition to instructional materials. It is recommended that administrators and teachers plan the following elements of the program before beginning Optacon instruction:

- The definition of criteria for selecting those students who will most benefit from Optacon instruction.
- The scheduling of regular class periods for instruction.
- The full preparation of teachers in the use of the equipment and materials.
- The consideration of the student's future use of the skill, once he has learned to read with the Optacon.

Some guidance in the selection of students, scheduling of classes, and training of teachers can be found in the final report of the AIR research project, prepared in September, 1974. Planning for future application of Optacon skills is, of course, dependent on the availability of equipment for the student. Information about purchase of Optacons can be obtained from the manufacturer, Telesensory Systems, Inc. Other funding sources, such as state rehabilitation services, agencies for the visually handicapped, or private philanthropic organizations, should be considered in helping the student to plan for and utilize his newly developed skill.

The course consists of 15 units. Units 1-14 are meant to be used sequentially and are designed to:

- introduce the student to the Optacon device and to the tactile "window" through which the images will be sensed, as well as basic tracking and machine adjustment techniques;
- develop the student's mastery of numeral recognition;
- develop the student's mastery of upper and lower case letter recognition;
- develop the student's word attack skills and the reading of meaningful material;
- increase reading speed through recognition of letter patterns that occur frequently and through self-practice with paragraphs of increasing length;
- prepare the student for reading selected type styles often encountered in typed or printed copy;
- familiarize the student with a variety of reading formats that may be encountered in daily living;
- extend the student's opportunities for reading a variety of print materials, including functional reading (e.g. dictionaries), pleasure reading (e.g. magazines), and educational reading (e.g. school texts);
- integrate the skills of reading print with other skills the student is developing, such as storytelling and typing;
- familiarize the student with the controls and adjustments possible on the Optacon in order that he can set and operate the device independently in new situations.

Unit 15 is an optional unit to be used as needed for remediation or special help at any time during training.

Recommended Procedures

The instructional materials have been organized with two major principles in mind. First, learners will do best if they enjoy what they are doing, experience success and are given an early opportunity to apply character recognition to meaningful reading. Second, the teacher who is working with the individual learner(s) is in the best position to guide them through the learning materials in a flexible manner, being responsive to their particular needs and abilities.

The developers of this course have built into the lessons certain options which give the teacher needed flexibility in dealing with individual differences among students. In general, though, it is recommended that the teacher:

- develop an atmosphere of challenge and opportunity to which the student looks forward each day;
- provide positive reinforcement by telling the student what he is doing right more often than what he is doing wrong;
- tell the student how the materials are organized and what is expected of him as he progresses through each lesson and unit so that he has a clear picture of his goal;
- avoid letting the student get "hung up" on words he may find difficult; on the other hand, give him ample time to try for recognition before prompting him;
- be alert to expressions of interest that indicate a readiness to become independent of the tracking aid;
- be alert to patterns of mistakes that can indicate which portion(s) of the remediation and special help unit might benefit the student;
- share with the student the things that are done in setting up the equipment and materials for each lesson so that he will be better able to do this on his own as soon as he is ready.

Structure of the Lessons

Each unit is composed of several lessons. Each lesson is intended to *add* to the skills already acquired in previous lessons. For example, the use of numerals as line identifications in each lesson helps the student avoid losing his place, and also gives him repeated practice in recognizing the numerals.

Similarly, as letters are introduced they are practiced in upper case, then lower case, then in a mixture of the two. Thus, letter practice is accomplished at the same time as new information is gained.

Finally, once letters have been learned they will reappear in subsequent lessons so that recognition skills are maintained for letters learned in earlier units. Since the letters introduced earliest in the course are typically those which occur most frequently in the English language (with a few exceptions) this means the student will get the most practice with letters he will encounter most often.

Each page is laid out in a way that prevents the student from getting lost--even when the teacher is not physically present. The student is instructed to come down (with the camera) from the top of the page until he feels a line. He follows this left, to its end, then down to line one. At the end of each line and each lesson he is signalled to STOP with a ■ mark which activates all the vibrators in the Optacon. This prevents his wandering off the page or looking for more instructional material. This pattern is maintained through Unit 9. Beginning with Unit 10 these tracking cues are gradually phased out, since the student must learn to become independent of such cues in any unstructured reading he will do in the future.

As support to these lessons, a thermoform sheet is included on which the numerals, letters or punctuation used in the lesson appear in raised outline. These are in the *same* type style as the lesson material. The student should be given an opportunity to feel each letter as he first encounters it.

Unit 1 familiarizes the student with the Optacon itself. Units 2-9 typically begin with the introduction of three or four new characters. The new characters are interspersed with characters learned in prior lessons or prior lines. The student is thus given practice in character recognition without context cues. The student should be asked to name each *letter* in the first four or five lines.

The next few lines give practice with recognizing the new characters as components of words, starting with short words and moving to longer words. (In these word practice lines the *word* is read aloud, not the characters within the words.) The word lists have been designed to cover several grade levels. Thus, students in the fourth or fifth grade may not be able to read all of the longer words. Take the student only as far as you feel he is capable of going. Teachers may find it advisable to give prompts on some of the longer words, especially for younger children or ones who may have spelling difficulties.

Notice particularly that on each of the numeral and letter lessons there are a series of dots between two of the lines about midway on the page. These dots are *not* meant to be "read" by the students. Rather, they tell the teacher which materials are for *drill and practice (above the dots)* and which are *enrichment materials (below the dots)*. If the student has no difficulty with drill material, it is not mandatory that he read all the enrichment section. However, the enrichment material is designed to provide practice in reading sentences with emphasis on the letters just learned, as opposed to simple letter recognition, so there are advantages to reading all of each lesson.

Punctuation is not treated as a separate study unit. Rather, it is introduced gradually in the context of the basic lessons. The teacher should explain the new punctuation at the time it first occurs.

Each unit contains line-by-line or lesson-by-lesson instructions for the teacher, followed by the instructional material to be used by the student. The teacher instructions are not meant as a script that must be followed verbatim, but rather as a guide and as an explanation of the rationale underlying the instructional materials. In general, the teacher should tell the student what his learning objective is for each lesson, and for each line within a lesson.

Following each of the basic Units 2 through 9 (numbers and letters of the alphabet) is a page of Criterion Exercises. When the learner and the teacher believe he is ready, the student can "challenge" the first criterion exercise at the top of the page. For most students this will probably occur after both drill and enrichment materials have been studied. Some students who want to move through the materials more rapidly might prefer to challenge the first criterion exercise as soon as they have finished the drill portion of the three lessons in the unit.

Note that two criterion exercises are provided for each unit. Both exercises follow the same format. In the criterion exercises for Unit 2, the first two lines contain all the numerals in scrambled order. The third line has a series of two-digit numbers. The fourth line has five simple arithmetic problems with the answers left blank. The student should read the problems silently, and respond with the correct answer.

In the criterion exercises for Units 3 through 9, the first line of each exercise contains the upper case letters learned in the unit, and the second line contains the lower case letters. The third and fourth lines contain ten words using the newly learned letters. Some of these words are capitalized.

The student should be asked to read the lines in sequence. If the student can complete the first exercise to the criterion level recommended for the unit, he should go on to the next unit without attempting the second criterion exercise. If he falls short of an acceptable criterion level on the first exercise, and if it appears that he would benefit from more drill and practice, then the student should go back for more work in the unit before attempting the second criterion exercise. However, he should not repeat the entire lesson or unit. Instead, he should practice only on the lines within the unit containing the characters with which he has a problem. When he is ready to try again, he should use the second criterion exercise, again attempting to reach an acceptable criterion level.

No absolute standards must be met by the student before he can be "graduated" into the next unit. Rather, this is a judgment call to be made by the teacher in the light of the motivational needs of the student and the type and frequency of errors made. (Remember that the student will receive further practice in the materials in later lessons. He should receive encouragement and not feel defeated.)

Criterion exercises after Unit 9 are varied to fit the content and format of each unit. Directions for using these exercises are found in the Teacher Instructions for the unit.

Note that if the camera is not aligned properly, the student will often miss the letter. The teacher should avoid scoring the student as "wrong" on character recognition if his real need is for better tracking.

If the student continues to have difficulty after further practice, he may need to work in Unit 15, the unit on remediation and special help. In particular, he should use the portion of that unit which deals with the pattern of problem he is encountering. That is, the problem may be one of differentiating "look alike" letters (for example, c or o), or of certain types of letters (for example, letters containing diagonals), or of size (for example, recognizing large upper case letters but having trouble with small lower case letters).

If the trouble is due to spelling or some other subject matter outside the scope of the materials, it is expected that the teacher would provide appropriate help.

Remember, the criterion exercises are not meant to hold students back, but rather to provide a way for the teacher and student to assess the level of skill developed and to focus more specifically on any special needs of the student.

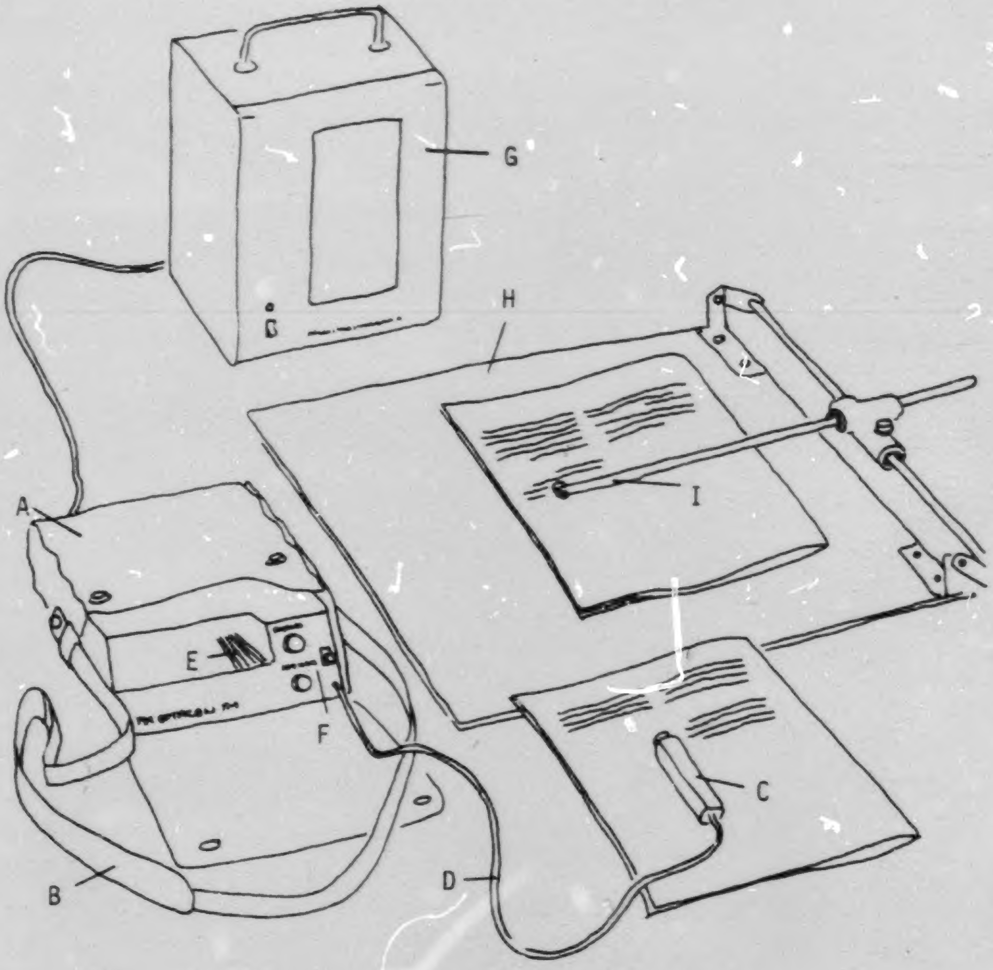
When a student (or the parent) is first introduced to the Optacon, it is important that he be properly prepared for the experience. In particular, he should be told that he will feel a slight tingling sensation on his finger. Emphasize that this is not an electrical shock, but merely the action of vibrating pins or rods. To ensure that the first experience is a mild one, the intensity setting on the Optacon should be set close to zero; when the student's finger is in place the intensity can be raised gradually so that he becomes accustomed to the vibrating sensation. At first the student may want to work with the Optacon for only a short period of time, but he will soon build a tolerance for the tactile stimulation.

During rest breaks, blind students may have a natural tendency to explore the Optacon equipment with their fingers. Teachers should not allow the student's inquisitive nature to lead to attempts to disassemble or otherwise jeopardize this precision equipment.

Be sure that the student is in a comfortable position for his lessons. For example, the heights of tables and chairs should allow him to rest his arms comfortably on the table. Encourage the student to find his own most comfortable side-by-side placement of the Optacon and the tracking aid, remembering that the Optacon should be on the left.

Typically, the Optacon will be angled slightly, in the same direction as the student's left arm when placed in a resting position on the table top. The tracking aid will generally be angled as well, in the same direction as his right arm when at rest. The diagram on the next page shows a typical learning station.

Typical Learning Station



A	Leather-cased Optacon Electronics
B	Shoulder Strap
C	Camera or Light Probe, with Zoom
D	Cable
E	Tactile Array (Index Finger)
F	On-Off, Threshold and Intensity Controls
G	Visual Display
H	Tracking Aid (as used in the Research Study)
I	Tracking Aid Guide Bar-Camera Attachment

The way in which the student places his hand in the Optacon is especially important. The left index finger should lie flat on the tactile array and be stable. "Scrubbing" movements should be discouraged, as well as heavy pressure on the array. Also watch that the student's left thumb does not inadvertently move the threshold knob on the front of the Optacon as this will affect the tactile image.

At first, the teacher will lightly guide (control) the student in tracking of lines. As the student begins to do his own tracking the teacher will need to alert him when he drifts off the line and picks up only a part of the letter. The instruction to the student should be in terms of camera movement. Thus, tell him to "push the camera up a little" if only part of the letter shows at the top of the display. Similarly, tell him to "pull the camera down a little" when the image is too low in the display.

"Adequate" alignment of the camera on the line of print necessarily is a matter requiring teacher judgment. Some letters can be recognized without a perfect alignment. In any case, the teacher should point out the normal height relationships of upper case letters, lower case letters, and those letters such as "p" which extend downward from the line of type. The Optacon settings for image size should be set so that the three variations in letter height all fall within the normal field of view, as seen on the Visual Display.

Teachers should be thoroughly familiar with the Equipment Instruction Manual provided by the manufacturer in order to properly use and care for the equipment. Most important, the Optacon should be maintained with a full battery charge. Daily use of the battery charger is highly advisable since the Optacon is operated only by the battery and never from direct current, even when the equipment is plugged into an outlet. The Optacon can be left plugged into the charger at all times, but at a minimum it should be recharged two hours for each hour of use.

Before beginning each lesson, the teacher should make the following equipment checks:

- Make sure that the invert switch is in the normal position.
- Make sure the battery is fully charged by depressing the battery check button--if the pitch rises or remains the same, the battery is well charged; if the pitch falls, the battery needs recharging (the battery charger should not be plugged into the Optacon during this test).
- Perform a row and column check of the Visual Display and tactile array. The row and column check is done in the following way:

  1. Turn on the Visual Display and the Optacon.
  2. Place the camera on a straight printed line (to be found at the top of the student instruction pages in this manual).
  3. Push the magnification button all the way back toward the cable end of the camera and adjust the threshold control so that a single horizontal line appears on the Visual Display.
  4. Turn the intensity knob fully clockwise so that you can easily feel the horizontal line on the vibrators.
  5. Slowly move the camera up or down over the horizontal line. Watch the Visual Display to see that each row is completely lit and feel for unbroken vibrating rows on the tactile array.
  6. Turn the page so that the line is vertical and move the camera back or forth over the line, watching for lit columns on the Visual Display and vibrating columns on the tactile array.

It is important to know that the Visual Display and tactile array do not always correspond--for example, all the lights in the Visual Display may be operating, but there may be weak or missing vibrators in the tactile array, and vice versa. In the event that the equipment is not operating properly, you should perform the troubleshooting procedures recommended in the manufacturer's equipment instruction manual. If the problem persists, you should contact the manufacturer.

Optimum reading with the Optacon depends on correct adjustment of the three controls for magnification, intensity, and threshold. Since this is information the student should learn, it is presented in Unit 1, Lesson 1.

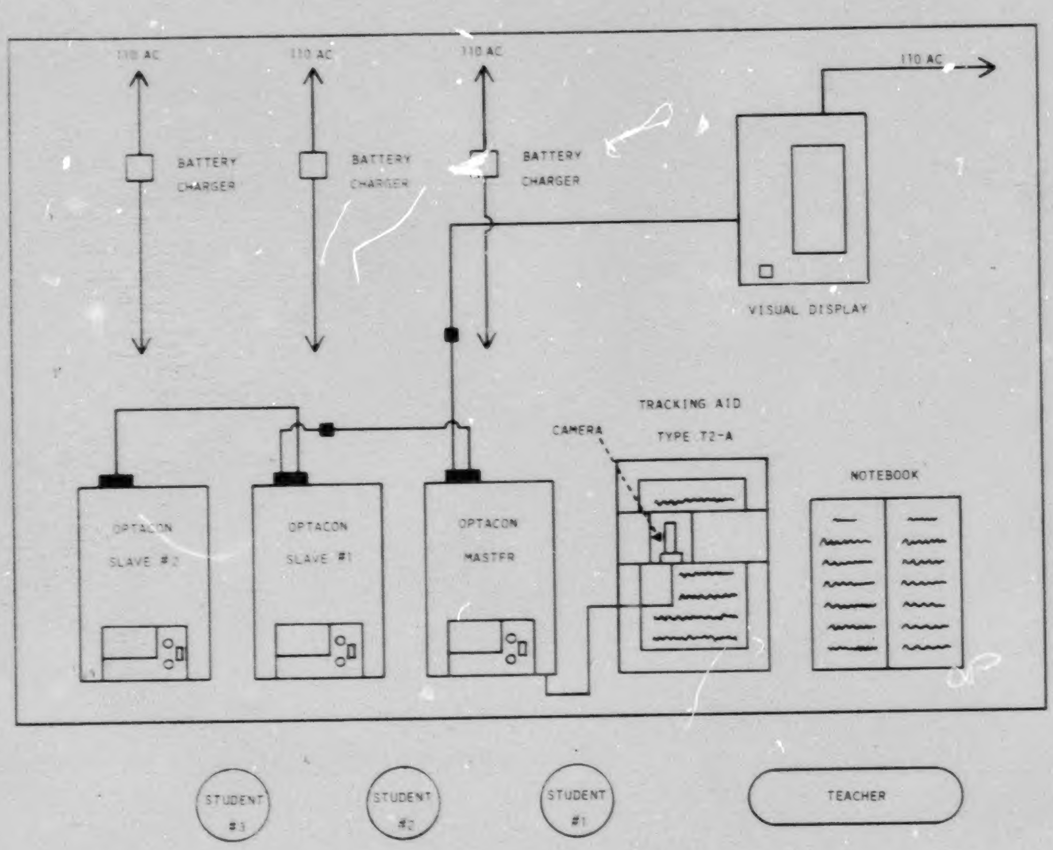
Teacher-Student Ratios

Some teachers may have several candidates for Optacon instruction who are available only during a limited time of the day. It is possible to teach several students simultaneously by attaching several Optacons together in a "master-slave" mode. Special cables are available from the manufacturer for this purpose. Below is a list of steps to be followed in connecting three Optacons.

1. Plug the Visual Display into the wall (3-pronged outlet only). Do not turn it on.
2. Using a master/slave cable (one that has three ends), plug the short end into the cable that comes out of the Visual Display. Note: Due to the male and female connections on the master/slave cable, there is only one way this can be accomplished.
3. Plug the other end of the short cable into the back of the master Optacon. The master Optacon should be turned off.
4. Using the second master/slave cable, plug the short end into the long cable coming from the master Optacon.
5. Plug the other end of the short cable into slave Optacon #1.
6. Plug the long cable into the back of slave Optacon #2.
7. Unscrew the fastener which holds the camera in place in the master Optacon. The cameras on slave Optacons #1 and #2 should be loosened and placed on the table. (They will not be used.)
8. Turn on the Visual Display and the master Optacon.
9. Place the camera on clearly typed copy (carbon ribbon is suggested). Make appropriate adjustments for height of letter, threshold and intensity.
10. On both slave Optacons, turn the threshold knob to medium (be sure it is not turned all the way down to zero).
11. Turn on slave Optacon #1 and adjust the intensity knob to where it feels best.
12. Turn on slave Optacon #2 and repeat the intensity adjustment.
13. If you find it necessary to unplug or rearrange equipment, turn the equipment off before changing any plugs.

14. Your Optacon configuration should look like this:

Configuration for Placement of Master/Slave Equipment


110 AC
110 AC
110 AC
110 AC
BATTERY CHARGER
BATTERY CHARGER
BATTERY CHARGER
VISUAL DISPLAY
TRACKING AID TYPE T2-A
CAMERA
NOTEBOOK
OPTACON SLAVE #2
OPTACON SLAVE #1
OPTACON MASTER
STUDENT #3
STUDENT #2
STUDENT #1
TEACHER

Note: In this drawing, the battery charger is not plugged in. Each Optacon should be plugged into a battery charger which in turn is plugged into an AC wall outlet. They can be left plugged in at all times, along with the Visual Display, if you have four wall outlets available near the table. If you only have two outlets on the wall then two of the Optacons will have to be charged over night every night, while the other Optacon and Visual Display remain plugged in during the day.

Note that a "master/slave" arrangement implies that one (or more) students will be receiving tactile images over which they have little control. That is, they may control the intensity but cannot control the magnification, threshold or tracking. In effect, they become dependent on what the student at the "master" Optacon is doing. While this approach has some obvious drawbacks, especially where students on the "master" and "slave" machines are of sharply differing ability, there can be advantages as well. Most noticeably, students of comparable skill can help each other to recognize cues, can take turns in operating the "master" and doing the tracking, and can build speed by making a game out of rapid recognition.

In the event that a teacher does decide to teach several students at once she should still maintain a focus on meeting individual needs. Frequently, extra practice will have to be given to one student and not the other. Similarly, as students progress at different rates they should no longer be forced to study the same lessons purely for administrative convenience.

As a general rule, when students have demonstrated their ability to track independently they should each use a separate Optacon. Of course, they ca still study simultaneously under the teacher's general supervision.

The design and structure of these instructional materials take into consideration many suggestions made during the course of a national study, conducted by the American Institutes for Research, concerning the educational potential of the Optacon*. Certain highlights of that research and experiences gained during that study may be helpful to the teacher as she begins to work with novice Optacon students:

- Students with high intelligence and tactile ability (as measured by a Tactile-Kinesthetic Form Discrimination Test) should achieve the best reading rates and should do so with very high accuracy. Braille ability is not necessarily indicative of a good Optacon learner.
- Students at both elementary and secondary levels can learn the Optacon and can do so singly or in groups of two or three.
- Cross age tutoring, blind-to-blind instruction and other special training configurations seem to be viable.
- Attained reading rates will vary widely. After about 50 hours of study some individuals may be reading as slow as 5 WPM while others may be reading at 30 WPM. Even where the rates are not very rapid, however, the students may be reading quite accurately. While slower reading rates may not be adequate for bulk reading, they may be quite satisfactory for a number of reading applications. Therefore, slower students may still feel a sense of accomplishment, and deservedly so.
- Since periods of discouragement and fatigue may occur from time to time, a positive attitude and motivation should be cultivated. Teachers should try to develop a feeling of "I can do it" and should take pains not to introduce a skeptical tone if early student efforts seem to be laborious. In any case, the beginning student should not be misled into thinking that this is a skill that will be learned in minutes. Patience and persistence will pay off.

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* Weisgerber, R.A., et al. Educational evaluation of the Optacon (optical-to-tactile converter) as a reading aid to blind elementary and secondary students. Interim Technical Report, Phase I. Palo Alto, Calif.: American Institutes for Research, September 1973. (AIR-34500-9/73-ITR)

- The building of Optacon skills is directly correlated with the amount of time devoted to study. Additional study time, during free periods or at home, should be encouraged after initial training is well underway. Conversely, summer vacations and other temporary interruptions in the study pattern do not seem to lead to large-scale forgetting of the tactile patterns and tracking skills.

Now it is time to begin instruction. Good luck to you and to your students!

Teacher Instructions

Lesson 1: Equipment Orientation

Begin formal instruction by familiarizing the student with the main features of the Optacon and tracking aid. (A more extensive treatment of equipment operation and utilization is given in Unit 13, when students are preparing to function independently of the teacher.) In order to cover the main points of familiarization, without omission, the following steps are recommended.

- Place the Optacon and the tracking aid in front of the student, so that the Optacon is to the left of the tracking aid and in front of the student's left hand, and the tracking aid is in front of the student's right hand. If there is a Visual Display box, this is usually set behind the Optacon and the tracking aid so that it is visible to the teacher but well out of the student's way.

- Guide the student's hands over each of the pieces of equipment, telling him the name and purpose of each, and letting him become familiar with where each item is located and how each is angled with respect to the table top.

- Help the student find a comfortable position for use of the Optacon. Make sure that tables and chairs are the right height for the student. Encourage him to find a comfortable placement of the Optacon and tracking aid in front of him, aligned with his arms as they rest naturally on the table.

- Show the student how to open the leather case on the Optacon. Guide his hands over the camera and the bolt on the left that secures the camera for storage. Then remove the camera from the compartment by unscrewing the bolt and carefully lifting the camera out. Explain what you are doing to the student.

Then replace the camera and let the student remove it by himself.

- For this exercise, use line 1 of the Lesson on page 33. Line 1, on which the letter "O" has been printed, will be used for demonstrating the correct adjustment of the Optacon for reading. Help the student grasp the camera in a way that will be stable and comfortable for him. (Although you will be tracking for the student during the first few lessons, he should have practice in holding the camera.) The rollers should be flat on the surface of the page, and the camera should be at a right angle to the line of print. The student should hold the camera naturally and in a relaxed manner. Be sure the student's index finger is not resting on the magnification button as he grasps the camera. Show the student the aperture of the camera, and explain that this is the part of the equipment that "sees" the printed page and sends signals to his left hand.

- Show the student where the off-on switch is, and have him turn the Optacon on. Explain that he will hear a buzz when using the device. (Make sure the normal-invert switch on the back panel is in the "normal" position for reading black print on white paper.)

- Help the student place his left hand in the opening of the Optacon, with the index finger lying flat on the grooved plate. The tip of his finger should be in a position to feel the top row of vibrating rods. Caution the student against pressing down hard with the finger, but be sure it is in good contact with the grid.

- Next, explain that there are adjustments that make the images clear and easily read. The first adjustment is for intensity. Position the camera on the "O" on line 1, page 33, being sure the intensity on the Optacon is set close to zero. Tell the student that he will feel a slight tingling sensation on his finger. Make it clear that this is not an electrical shock, but the action of tiny rods that vibrate or move very quickly. Gradually increase the intensity so that the student will become accustomed to the vibrating sensation. At first the student may object to the tingling feeling, but he will soon build a tolerance for the tactile stimulation. Let the student select an intensity setting that is most comfortable for him. (Be sure the intensity is high enough so there are no "holes" or dead spots in the tactile array.) Tell him to note the position of the raised dot on the front of the knob. He can use this dot to check the intensity setting each time he reads.

- Have the student move the camera very slightly from left to right and up and down. Have him concentrate on how this changes the image under his index finger. Have him practice correcting (reversing) the direction of the camera movement when it seems as though he is about to lose the tactile image.

- Show the student the zoom adjustment button on the top of the camera. Explain that if he slides the button up, away from himself, the image that he is feeling will get larger. With the camera on the "O" have him push the knob all the way to the top of the camera.

- Next, show him the control that adjusts for thickness of the image (threshold). Since he has made the "O" larger he should turn the control to the left, counterclockwise, to put the image in proportion by reducing the width. Now have him reduce the size of the image and increase the width. The "O" should appear unbroken and either one row of lights thick or two rows of lights thick, depending on student preference. Encourage the student to practice using these controls. They will be very important to him later as he begins to read materials in different typefaces.

- Next, have the student practice putting the camera away. Show him the screw on the left side of the ledge where he places his hand while reading with the Optacon. Explain that this is the part he will have to line up with the hole on the end of the camera. Have him find the round part of the screw on the outside of the Optacon. Show the student how to hold the camera in the palm of his right hand while he loosely wraps the wire around his fingers. Tell him to slip the wire off his fingers, and push it into the back of the ledge. Have him move the camera around until he feels the end of the screw match up with the hole on the end of the camera. Tell him to turn the screw clockwise, towards himself, until it is tight.

- Finally, show the student how to attach the leather straps to the case. Ask him to find the two metal snaps on each side of the case, as well as the leather loops in front of the snaps. Have him take the ends of the strap and push them through the leather loops. He may have to help the strap through the loop with his fingers, since sometimes the snaps catch on each other. Tell him to line up the snaps and push them in, one at a time, until they catch. Check that the strap is not twisted, and be sure that all four snaps are secure before telling him to pick up the Optacon by the straps. Have the student put the strap over his head so that it is hanging on both sides of his neck. It would be a good idea to leave the Optacon on your desk as he does this. Next, have him put his left arm through the strap so that the Optacon will be hanging on his right shoulder. Tell him to pick up the Optacon with his hands as he stands up, then lower it to his body. Advise him that the Optacon should hang towards the center of his body rather than to the side so that it will be less likely to bump into things.

Lesson 2: Field Practice

The purpose of Lesson 2 is to orient the student to the tactile field of the Optacon by presenting him with the different shapes to be found in letters. Page 33 includes vertical and horizontal lines, and page 34 emphasizes circles and diagonals. In this lesson you should track over the lines for the student, after reading aloud or paraphrasing the instructions. The following numbered statements correspond to line numbers on pages 33 and 34. As necessary, use the thermoform sheets of raised letters to teach the student the concepts of "vertical," "horizontal," "circle," and "diagonal."

During this lesson, be alert that the student seats his hand and finger properly in the Optacon. It is particularly important that the left index finger be flat and fairly stable on the tactile array. Watch also that the student's left thumb does not inadvertently move the threshold knob on the front of the Optacon.

Before beginning the lesson, set the intensity low, and adjust the magnification on the camera so that the box on line 2 is just within the display field on the Visual Display.

Say:

Line 2. Put your left hand in the opening of the Optacon, with your index finger lying flat in the groove. The shape you are feeling now is like a filled-in box. As you learn to use the Optacon, you will feel this box at the end of each line. It will mean to "stop" and go back to the next line of instruction.

Line 3. Here is the shape of an empty box. Try to get the top near the tip of your finger. Remember to keep your finger down flat. Can you feel both the top and the bottom of the box? Can you feel both sides at once? Can you feel the box shape? The next shape is the filled-in box, telling you to stop and go to the next line.

Line 4. Here is a vertical line. A vertical line is a line that runs up and down. Tell me each time a vertical line passes your finger.

Line 5. Some of the shapes that you will feel now are single vertical lines. Others are in pairs. Tell me which of the vertical lines are in pairs.

Line 6. The shapes you will feel now are paired vertical lines. One of the lines in each pair is shorter than the other one. Of each pair, which line is shorter, the first one or the second one?

Line 7. Here is a horizontal line. A horizontal line is a line that runs from side to side. Tell me each time a horizontal line passes your finger.

Line 8. Some of the shapes you will feel now are single horizontal lines. Others are in pairs. Tell me which of the horizontal lines are in pairs.

Line 9. The shapes you will feel now are paired horizontal lines. One of the lines in each pair is shorter than the other one. Of each pair, which line is shorter, the top one or the bottom one?

Line 10. Here is a row of boxes. Some of the boxes have a side missing. Tell me each time you find one that is missing a side. Which side is missing?

Line 11. Here is another row of boxes. Tell me each time you find one that is missing a top or a bottom. Which is missing, the top or the bottom?

Line 12. Here is part of the box you just felt. It is a vertical line with a horizontal line at the bottom. Some of the shapes don't have a line attached at the bottom. Tell me which ones don't have a bottom line.

Line 13. Here is a vertical line with a horizontal line at the top. Tell me which ones are missing tops.

Line 14. Tell me which vertical lines have horizontal lines at the top and which ones have horizontal lines at the bottom.

(The teacher should now replace page 33 with page 34 on the tracking aid.)

Line 15. Here is a circle. Tell me each time a circle passes your finger.

Line 16. Here are some more circles. Some of these circles are by themselves and some of them are in pairs. Tell me which of the circles are in pairs.

Line 17. Here are some more circles. Some of them are taller than others. Tell me when the circles are taller than the first circle.

Line 18. On this row are more circles. Some of them are open on one side. Tell me which ones are open.

Line 19. Here is another row of circles. Some of these circles have vertical lines sticking up on the left side. Tell me which circles have lines sticking up.

Line 20. Here is another row of circles. This time some of them have vertical lines sticking down on the left side. Tell me which ones have lines sticking down.

Line 21. Here is a diagonal line. A diagonal line runs from corner to corner. Tell me each time a diagonal line passes your finger.

Line 22. On this row there are diagonal lines and straight vertical lines. Tell me which ones are diagonal lines.

Line 23. Here is a row of diagonal lines. Some of them have a horizontal line at the top. Tell me which ones have the line at the top.

Line 24. Here is a row of diagonal lines that cross each other. Find the ones that are smaller than the first one.

Line 25. On this row some of the diagonal lines cross in the middle and some come together or meet at the bottom. Tell me which ones meet at the bottom.

Line 26. On this row the shapes begin with vertical lines and end with small circles at the top half. Some of the shapes also have diagonal lines toward the bottom. Can you tell me which shapes have the diagonal lines?

Lesson 3: Tracking Orientation

The purpose of this lesson is to acquaint the student with the various parts of the tracking aid, and to let him try out the aid in some simple exercises. Tracking is a difficult motor skill that will be more easily mastered after the student has gained some skill in letter recognition. Therefore, at first you should track for the student. However, as soon as the student indicates the desire, and has some awareness of how to correct for mistracking, he should be allowed to track for himself. (When this occurs may vary widely among individuals.)

Three models of tracking aid are available from the manufacturer. On Model T1-B, the camera is attached to the aid by means of a long metal bar attached to the right side of the plate. On Models T2-A and T2-B the camera is fitted into a plastic template placed over the page to be read. The following general instructions apply to either type of aid.

- Have the student explore the tracking aid. Ask him to find the top, bottom, left and right sides if he seems hesitant.

- Attach the camera to the tracking aid, explaining what you are doing. Let the student feel the camera and the aid. Then detach the camera and guide the student in attaching it again. Then demonstrate to him how the camera is detached.

- With the camera fastened to the tracking aid, let the student practice moving it across the page, and up and down the page. Explain that the aid will help him to stay on the line while he is reading, as well as to find a new line.

- Show the student the rollers on the bottom side of the camera. Explain that these rollers will help him move the camera straight across the page when he is ready to become independent of the tracking aid.

- Remove page 35 from the manual, and show the student how a page of lesson material is placed on the tracking aid. Show him how to align the sheet so that it is not crooked.

- Have the student find the top of the page with his right hand while he is holding the camera. Then have him put his left hand in the Optacon, ready to feel the vibrators.

Say to the Student:

Find the top of the page. Pull the camera down until you feel a line going across your finger. This line is near the top of the page and it goes from one side of the page to the other. Move the camera to the left along this line until you feel a smaller line that runs up and down. This line tells you that this is the place to pull the camera down (towards yourself). If you pull the camera straight down a very short distance, you will feel two dots. Keep pulling the camera down very slowly and you will soon feel a shape that is a zero. (Note: It may be necessary to guide the student's hand the first time he attempts this exercise. If so, guide the student and then let him do it on his own until he has some degree of confidence.)

(Note: Lines 1-3 are practices for positioning the camera. During these practices try to get the student to think about where he is feeling the sensation on his finger. If the student seems to be having difficulty with any of the exercises, have him repeat them as many times as necessary.)

The following instructions correspond to line numbers on page 35.

Say to the Student:

Line 1. Begin with the camera on the zero. As you move the camera to the right, you will feel a series of short horizontal lines. Keep these lines centered so that you feel them vibrating in the middle of your finger. If you drift either too far up or too far down you will feel a solid line, also. Try to track all the way across the page without touching either of the solid lines.

(Help the student locate the second line by returning to the beginning of line 1 and dropping down. After each exercise help the student locate the next line.)

Line 2. As you move to the right you will again find the short lines. This time they are near the bottom of the zero. Keep these lines low as you track so that you feel them vibrating near the bottom of the pins. Again, if you drift up or down you will feel a solid line above or below the dotted line. Track across the page keeping the dotted lines low and trying not to touch the solid lines.

Line 3. This exercise is the same as the first two, but this time the short lines are near the top of the zero. Track across the page trying not to touch the solid lines.

Line 4. This is a practice tracking across short symbols with different shapes. Try to keep the symbols in the middle of the vibrating pins.

Line 5. This is a practice tracking across tall symbols. Try to keep the tops of these tall symbols near the top of the vibrating pins without losing part of the image. Some of the spaces between these symbols are longer.

Line 6. On this line some of the symbols are tall and some of them are short. Most of the symbols have no spaces between them. Track across the line, trying to keep the tops of the tall symbols near the top of the vibrating pins.

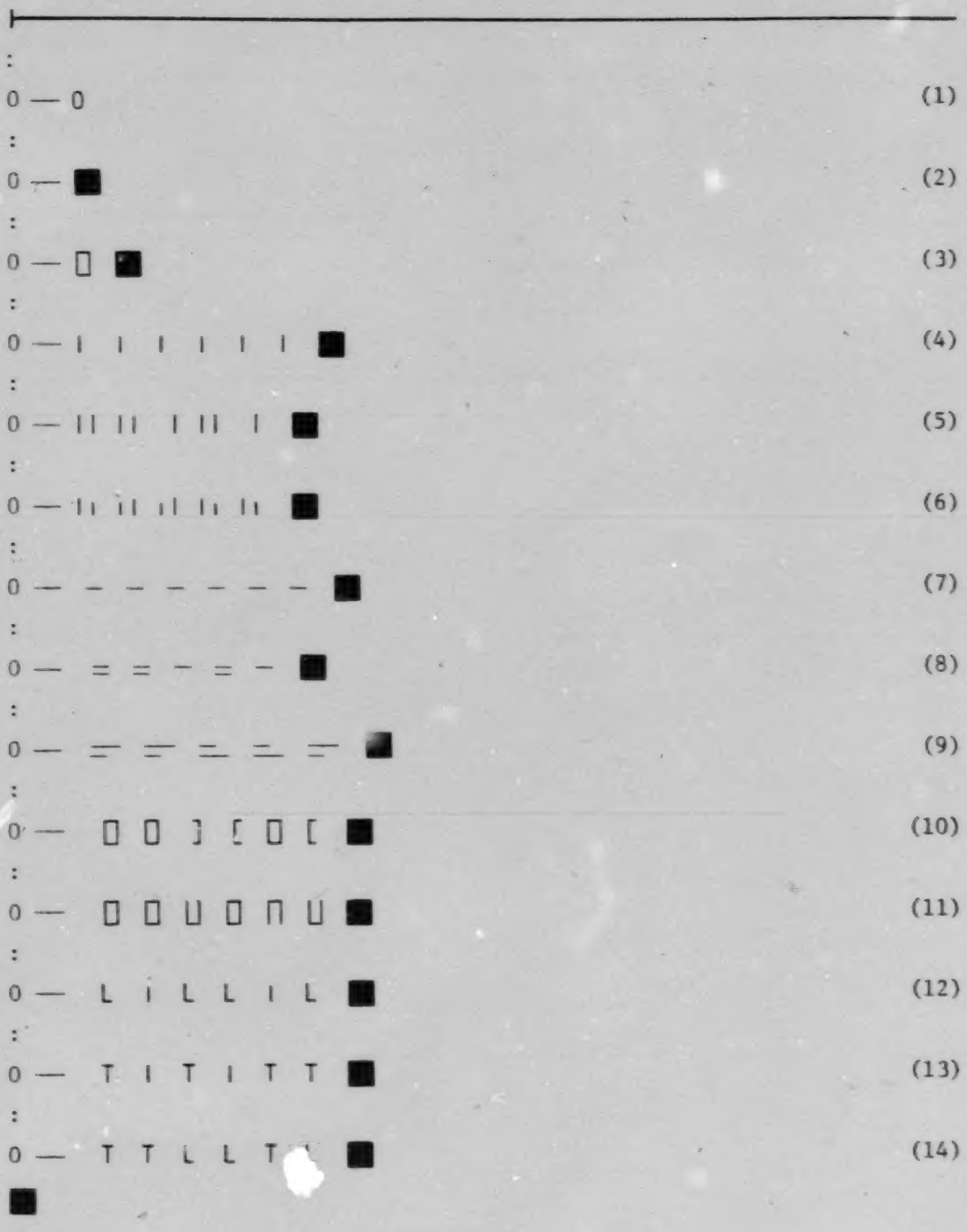
Line 7. This is the same type of practice as the last one, but the symbols are spaced farther apart. Track across this line.

Line 8. Some of the symbols on this line have descenders (a stem hanging down). The other symbols on the line are both tall and short. Find the first symbol that has a descender. Track across the line by positioning the symbols so that the tops of tall symbols are near the top of the vibrating pins and so that you are not cutting off the descenders.

Line 9. This is the same type of practice as the last line, but the symbols are spaced farther apart. Keep the camera positioned so that you don't cut off the descenders. Track across this line.

Lines 10-12. The next three exercises are practice in tracking across open spaces. Each line begins with a zero. Try to track straight across the page and find the zero on the other side without losing your place. If you drift up or down you will find a straight line. If you come to a line going straight up and down, you have gone too far to the right. Now try it again on the next two lines. The empty spaces will keep getting longer and longer.

(Explain to the student that this lesson has been for practice. Tell him that you will track for him at first, but that he should let you know when he feels ready to track for himself.)


0 — 0
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
(9)
(10)
(11)
(12)
(13)
(14)

UNIT 1 - INTRODUCTION TO THE OPTACON Elementary Level
Lesson 1: Equipment Orientation (first line only)
Lesson 2: Field Practice (begin with second line)

:
0 — o o o o o ■ (15)
:
0 — 8 8 ₒ 8 ° ■ (16)
:
0 — o 0 o 0 o ■ (17)
:
0 — c c o c o c ■ (18)
:
0 — o b o b b o ■ (19)
:
0 — o p p o p o ■ (20)
:
0 — / / / / / / ■ (21)
:
0 — / | / / ı / ■ (22)
:
0 — 7 / 7 / / 7 ■ (23)
:
0 — X X x x X x ■ (24)
:
0 — X V X V V X ■ (25)
:
0 — P R R P P R ■ (26)
■

:

0 - - - - - - - - - - - - - - - - - - ■ (1)

:

0 - - - - - - - - - - - - - - - - - - ■ (2)

:

0 - - - - - - - - - - - - - - - - - - ■ (3)

:

0 o x x o o x o x o o o x o x x ■ (4)

:

0 0 0 X 0 X X X X 0 0 X X 0 X 0 X 0 ■ (5)

:

0oxx 0oxo oo X0oox xoXo 0ooo x0ox 0xoo Xo oo0 ■ (6)

:

0 0 o x 0 X o o x o o X o 0 0 x 0 o x X ■ (7)

:

0ox poo pxo X0o po0xx 0oX pxx pxp Xop0p 0p ooX ■ (8)

:

0 p o X x x 0 o o p p o p x X x o o o p x o ■ (9)

:

0 0 (10)

:

0 0 (11)

:

0 0 (12)

■

Teacher Instructions

A major option is open to the teacher at this point. The intent of this unit is to introduce the nine numerals and then give reinforcement in their use in later units, where lines are numbered. However, Unit 2, which teaches numerals, can be deferred until a later point in training if the teacher and student prefer to gain exposure to the numerals through the context of line numbering. As an additional option, the enrichment material (below the dotted lines) may be bypassed until a later time.

If the decision is made to teach numerals now, then at a minimum the drill and practice portion of all three lessons within the unit should be covered as well as the criterion exercise which follows.

> [Note: Beginning with this unit, and continuing through Unit 9, each line of instruction begins with a number, followed by a short horizontal line. These numbers and lines are tracking cues for the student. On each new page, he should learn to pull the camera down from the top of the page and then left along the guide line. He should pull the camera down slowly, past the two dots, until he finds the line number. Then he should follow the horizontal line to the right to find the new letter or word.]

Lesson 1: 0, 1, 2, 3

The numerals 0, 1, 2, and 3 are taught in this lesson.

On line 1, there is a series of zeros, with one X used as a distractor. Ask the student to identify the characters by saying whether each is a zero or not. He does not have to name the different symbol.

In the middle of line 1, there are three widely spaced dots. This is the mark used to separate one learning task from another. The second half of line 1 teaches the numeral 1. Here again, a series of ones is presented, with a zero used as a distractor. Ask the student to identify whether each character is a 1 or not.

Line 2 is the same as line 1, except that the numerals 2 and 3 are to be taught.

On line 3, the numerals 0 through 3 are presented in scrambled order. Ask the student to read each numeral.

Line 4 begins the enrichment material. This line consists of three simple problems in addition. Explain the "plus" and "equals" signs to the student.

Line 5 has three simple problems in subtraction. Explain the "minus" sign to the student.

On line 6 the student should be asked to identify the numbers which have paired digits--that is, 11, 33, and 22.

On lines 7 and 8, ask the student to read the whole numbers.

Lesson 2: 4, 5, 6

The numerals 4, 5, and 6 are taught in this lesson.

On lines 1 and 2, the student should identify the characters being taught in each set.

On line 3, ask the student to read each numeral.

Enrichment material begins with line 4. There are three series of numerals; within each series, one of the numerals is out of sequence. Ask the student to identify the misplaced numeral.

Lines 5 and 6 contain simple addition and subtraction problems. On line 7 ask the student to find the ages of people older than himself.

Line 8 contains whole numbers, fractions and decimals. Explain how to recognize fractions and decimals, and ask the student to find whole numbers.

Lesson 3: 7, 8, 9

The numerals 7, 8, and 9 are taught in this lesson.

On lines 1 and 2, the student should identify the characters being taught in each set.

On line 3, ask the student to read each numeral.

Enrichment material begins with line 4. The first half of this line has a local telephone number. Point out the use of the hyphen. The second half of line 4 has a long distance number. Point out the use of parentheses to indicate the area code.

On lines 5 and 6 are simple arithmetic problems.

On line 7, ask the student to find the numbers that are more than 50.

On line 8, ask the student to find the year that is famous in American history.

Criterion Exercise, Unit 2

On lines 1 and 2 ask the student to read each numeral aloud. (Acceptable criterion is 26 of 32.)

On line 3 ask the student to read the two-digit numbers. (Acceptable criterion is 7 of 10.)

On line 4 ask the student to answer the five simple math problems. (Acceptable criterion is 3 of 5.)

The second criterion exercise is scored similarly, but is used only if further study of numerals was necessary.

:

1 — 0 X 0 0 0 0 0 ... 1 1 1 1 0 1 1 ■

:

2 — 2 2 2 2 1 2 2 ... 3 3 3 0 3 3 3 ■

:

3 — 0 1 2 3 ... 3 1 0 2 ... 1 3 2 0 ■

:

4 — 2 + 1 = 3 ... 1 + 0 = 1 ... 3 + 0 = 3 ■

:

5 — 2 - 2 = 0 ... 3 - 2 = 1 ... 3 - 1 = 2 ■

:

6 — 13 11 21 33 22 21 ■

:

7 — 2 32 102 301 1000 ■

:

8 — 23 200 10 3000 123 ■

■

:

1 — 4 4 3 4 4 4 4 ... 5 5 5 5 4 5 5 ■

:

2 — 6 6 6 6 6 5 6 ■

:

3 — 0 1 2 3 4 5 6 ... 2 5 1 6 3 4 0 ■

:

4 — 1 2 3 0 5 6 ... 1 2 3 4 5 1 ... 1 2 3 4 2 6 ■

:

5 — 5 + 1 = 6 ... 6 - 4 = 2 ... 4 + 6 = 10 ■

:

6 — 5 - 4 = 1 ... 4 + 1 = 5 ... 6 + 5 = 11 ■

:

7 — 3 16 5 14 21 ■

:

8 — 5/6 4.25 36 4/5 62 ■

■

:

1 — 7 7 7 6 7 7 7 . . . 8 8 8 8 7 8 8 ■

:

2 — 9 8 9 9 9 9 9 ■

:

3 — 0 1 2 3 4 5 6 7 8 9 . . . 8 0 4 6 2 7 3 1 5 9 ■

:

4 — 767 - 2676 ... (348) 555 - 1212 ■

:

5 — 9 - 2 = 7 ... 6 + 3 = 9 ... 7 + 1 = 8 ■

:

6 — 8 + 9 = 17 ... 8 - 7 = 1 ... 9 + 1 = 10 ■

:

7 — 3 62 18 93 21 46 ■

:

8 — 1495 1963 1776 1802 ■

■

:

1 — 2 6 5 3 0 1 4 9 7 8 5 1 2 6 9 0 ■

:

2 — 7 5 2 4 8 9 6 1 3 0 3 7 0 8 4 5 ■

:

3 — 67 98 10 51 42 75 39 24 86 30 ■

:

4 — 1 + 3 = 5 - 2 = 7 - 4 = 9 - 8 = 6 + 0 = ■

■

:

5 — 8 0 4 7 3 9 6 2 1 5 8 7 9 4 1 6 ■

:

6 — 4 5 8 1 0 6 7 2 9 3 0 3 6 2 5 1 ■

:

7 — 50 38 70 96 12 44 13 56 97 28 ■

:

8 — 2 + 1 = 7 - 5 = 3 + 4 = 8 - 6 = 0 + 9 = ■

■

Teacher Instructions

Beginning with this unit and proceeding through Unit 9, depending on learning performance the teacher and student may opt to bypass some of the enrichment materials within the lessons (words and sentences below the dots). Or, if the enrichment materials are read with relative ease, the teacher and student may opt to bypass lesson 3 (practice in mingled upper and lower case) within a given unit. In no case should any skipping of whole units occur since the introduction of letters is incremental and cumulative. Remember that any decision to bypass should be a function of the student's demonstrated skills, need for practice, and interests. Hopefully, the teacher can present the enrichment material and lesson 3 activities as opportunities and as educational games rather than as drudgery.

Lesson 1: Upper Case ATRE

The letters A, T, R, and E are taught in this unit.

On lines 1 through 4, the student should identify the characters being taught in each set.

On line 5, ask the student to read each letter.

Lines 6 and 7 are a series of simple words, from one to three letters long. Important: Throughout this lesson and all other lessons, try to foster the habit of reading whole words, rather than separate letters.

Line 8 is for enrichment, and consists of a short sentence. Have the student read the sentence.

Lesson 2: Lower Case atre

This lesson follows the same format as Lesson 1, except that lower case letters (a, t, r, e) are being taught.

Lesson 3: ATRE, atre Mixed

Lesson 3 provides practice in reading mixed upper and lower case letters.

On line 1 the student should read the letters and tell whether they are upper or lower case.

On lines 2 and 3, the student should read the words, and tell whether or not they are capitalized.

Enrichment is on line 4 and consists of a short sentence. Have the student read the sentence.

Criterion Exercise, Unit 3

On lines 1 and 2, tell the student to name all the letters. (Suggested criterion level is 26 or more correct.)

On lines 3 and 4, tell the student to read the whole words. (Suggested criterion level is seven words correct out of the ten.)

Depending on student performance and your judgment, go on to the next unit or go back into Unit 3 for additional practice. Remember, individual differences and motivational factors should be considered when making this judgment. If more practice is required, administer the second criterion exercise to the student when you feel he is ready.

:

1 — A A A / A / A A / A ■

:

2 — T T T A T A A T A T ■

:

3 — R R R T A T R A R R ■

:

4 — E E E R E T E A E E ■

:

5 — A T R E R E A T E R T A ■

:

6 — A AT ARE EAT ■

:

7 — EAR TEA RAT ART ■

: . . . .

8 — EAT ART EAT. ■

■

:

1 — a a a / a a / a / a ■

:

2 — t t t a a t a t t t ■

:

3 — r r r t r a t r a r ■

:

4 — e e e t e r a e r a ■

:

5 — a t r e t a e r e r t a ■

:

6 — ate a tear are ■

:

7 — rat art ear eat ■

: . . . . . .

8 — Art ate a treat. ■

■

```
:
1 — E a e T t r R A a R e t E r T A ■
:
2 — at  eat  Ear  tea  Tree ■
:
3 — are  A  Rear  Treat  tar ■
:    . . . . . .
4 — Art  ate  at  a  rare  rate. ■
■
```

:

1 — TRARREATAERETAET ■

:

2 — ereeateattrratra ■

:

3 — At Ear rare Tar Rate ■

:

4 — tea Tree eat Rear are ■

■

:

5 — AEAARRERTERETATT ■

:

6 — terareatraartete ■

:

7 — a rat Ate tar art ■

:

8 — ear Tear Eat Rare Treat ■

■

Teacher Instructions

By this unit most students will have advanced to a point where they are tracking for themselves with the help of the tracking aid. If not, then the teacher may want to concentrate on tracking practice before going on to the new letters I, H, O, S.

The same options for bypassing within the lessons exist in Unit 4 as they did in Unit 3.

Note: Beginning with this lesson the student will be introduced gradually to punctuation marks. No special instructions have been written to teach punctuation, since students easily learn punctuation marks in the context of the sentence or paragraph.

Lesson 1: Upper Case IHOS

The letters I, H, O, S are taught in this unit.

On lines 1 through 4, the student should identify the letters being taught in each set.

Line 5 presents a series of scrambled letters, including those learned in the previous lesson. The student should read each letter.

Lines 6 through 9 contain words ranging from two to five letters in length. The student should read each word. Discourage him from reading each letter out loud.

Enrichment begins at line 10. Lines 10, 11 and 12 are short sentences for the student to read. Note that the period is used for the first time in these sentences.

Lesson 2: Lower Case ihos

This lesson follows the same format as Lesson 1, except that lower case letters are being taught.

Enrichment begins at line 10. Lines 10, 11 and 12 are short sentences for the student to read.

On line 10, note that the apostrophe is used in a contraction.

Lesson 3: IHOS, ihos Mixed

This lesson provides practice in reading mixed upper and lower case letters.

On line 1, the student should read the letters and say whether they are upper or lower case.

On lines 2 and 3, the student should read the words and say whether or not they are capitalized.

Enrichment begins on line 4. Lines 4, 5 and 6 consist of short sentences which make up a short story. A character named Art, who is a born loser, is introduced.

Criterion Exercise, Unit 4

Follow the same directions as for Unit 3.

:

1 — I I I / I / I I / I ■

:

2 — H H H I H I I H I H ■

:

3 — O O O H O I O H I O ■

:

4 — S S S O I S H I O S ■

:

5 — I A O T S H E R T S H A I R O E ■

:

6 — OH IS SO TO IT AT ■

:

7 — HIS HAS TOO SEE THE ■

:

8 — THIS HAIR HERE THAT ■

:

9 — STATE HORSE THEIR OTHER ■

: . . . . . .

10 — I HEAR HIS HORSE. ■

:

11 — HE HEATS THE TOAST. ■

:

12 — SHE ATE HOT ROAST. ■

■

:

1 — i i i / i i / i / i ■

:

2 — h h h i i h i h h h ■

:

3 — o o o h i o i o h o ■

:

4 — s s s h s o i s o s ■

:

5 — e o r i a h s t r e h s t o a i ■

:

6 — he or as hi his its ■

:

7 — hit hot sit sat she her ■

:

8 — hire hear shoe hate sort ■

:

9 — tease short error raise ■

: . . . . . .

10 — it's hot at the shore. ■

:

11 — she has a sore throat. ■

:

12 — his hair is too short. ■

■

:

1 — S i s H h o O I i O s h S o H I ■

:

2 — Or she hear I Store this ■

:

3 — Has is other There sheet oh ■

: . . . .

4 — Artie hires a horse. ■

:

5 — He steers the horse to the street. ■

:

6 — The horse sits. Artie is sore. ■

■

:

1 — O I O S H I H O I O H S I S H S ■

:

2 — s i o h i o i h h i o s s o h s ■

:

3 — his sit short To Is ■

:

4 — tooth Has Shoe hose so ■

■

:

5 — H O S I O I O H I S H S H O S I ■

:

6 — i s s o s h h h i h s i o o i o ■

:

7 — Hair their it hire shirt ■

:

8 — These sea Toe others those ■

■

Teacher Instructions

Some students may be ready at this point to begin tracking independently of the tracking aid. The teacher should accede to the student if an interest is expressed along these lines, but should establish rather quickly whether this will substantially impede the student's progress. When the student begins freehand tracking the teacher should loop the student back through Unit 1, Lesson 3, and develop his freehand skills before continuing to learn new letters.

Lesson 1: Upper Case DLUN

The letters D, L, U, N are taught in this unit.

On lines 1 through 4, the student should identify the letters being taught in each set.

On line 5, the student should read each letter.

Lines 6 through 8 contain words from two to five letters long for the student to read.

Enrichment material, lines 9 through 12, is a riddle. Ask the student if he can figure out who Ronald is as he reads.

Lesson 2: Lower Case dlun

This lesson follows the same format as Lesson 1, except that lower case letters are being taught.

Enrichment material, lines 9 through 12, is a short poem. In lines 9 and 10, the student is introduced for the first time to a broken sentence--that is, the sentence continues from one line to the next. Note that the exclamation point is used at the end of line 12.

Lesson 3: DLUN, dlun Mixed

This lesson is for practice in reading mixed upper and lower case letters.

On line 1, the student should read the letters and say whether they are upper or lower case.

On lines 2 and 3, the student should read the words and say whether or not they are capitalized.

Enrichment, lines 4 through 7, is another story about Artie--this time he has a run-in with his car. Note that the comma is introduced on line 5.

Criterion Exercise, Unit 5

Follow the same directions as for Unit 3.

:

1 — D D D / D D / D / D ■

:

2 — L L L D D L D L L L ■

:

3 — U U U L D U D L U U ■

:

4 — N N N L N U D N U N ■

:

5 — L N I U A N D R L U T N L H D S O E U D ■

:

6 — IN AN ON US OUT DID DAD ■

:

7 — AND OLD ONE USED TOLD HAND ■

:

8 — LOUD STILL STAND ALONE UNTIL ■

: . . . . . .

9 — RONALD HIDES IN THE SAND. ■

:

10 — RONALD EATS SNAILS AT DINNER. ■

:

11 — RONALD HAS NO HANDS OR HORNS. ■

:

12 — RONALD IS A TOAD. ■

■

:

1 — d d d / d / d / d d ■

:

2 — l l l d l d l d l l ■

:

3 — u u u l u d l u d u ■

:

4 — n n n d n l u n n u ■

:

5 — d u e o s d h l n t u l r d n a u i n l ■

:

6 — ho do did all out end had ■

:

7 — lid sun said tune none done ■

:

8 — rule sound stood dared later ■

: . . . . . .

9 — underneath the sand dune ■

:

10 — Donald hid his dollar. ■

:

11 — the tide rolled it out to sea. ■

:

12 — listen to Donald holler! ■

■

UNIT 5 - LETTERS (D,L,U,N) Elementary Level
Lesson 2: Lower case d,l,u,n

:

1 — N d n L l u U D d U n l N u L D ■

:

2 — Use truth not send Dirt Learn ■

:

3 — Tell under land noon drill hunt ■

: . . . .

4 — Artie traded his horse in on an old auto. ■

:

5 — It has no horn, and is hard to start. ■

:

6 — The doors don't shut either. ■

:

7 — Artie is still a loser. ■

■

60

:

1 — D N N L N U D N D L D L U U L U ■

:

2 — d l n d u l n n d d l n u u l l ■

:

3 — Doll need under last tell ■

:

4 — Until run dull Line No ■

■

:

5 — D U U D L U D D U N L N L N L N ■

:

6 — n l n d n n d u u l u d d l u l ■

:

7 — Loud den Use noun Door ■

:

8 — Nail unless land read Still ■

■

UNIT 5 - LETTERS (D,L,U,N)
Criterion Exercise

Elementary Level

Teacher Instructions

Lesson 1: Upper Case CGMF

The letters C, G, M and F are taught in this unit.

On lines 1 through 4, the student should identify the letters being taught in each set.

On line 5, the student should read each letter.

On lines 6 through 9, the student should read each word.

Enrichment material, lines 10 through 12, consists of short sentences.

Lesson 2: Lower Case cgmf

This lesson follows the same format as Lesson 1, except that lower case letters are being taught.

Enrichment material is on lines 9 through 12. It consists of a short poem. Students who read slowly may not pick up the rhythm of poetry or the rhyming words. After the student has read through line 12, you might want to read the poem to him.

Quotation marks are introduced on line 11, and a contraction is used on line 12.

Lesson 3: CGMF, cgmf Mixed

This lesson gives practice in reading mixed upper and lower case letters.

On line 1, the student should read the letters and say whether they are upper or lower case.

On lines 2 and 3, the student should read the words and say whether or not they are capitalized.

Enrichment material, lines 4 through 8, is a series of sentences.

> Note: Lesson 3 of this unit (and subsequent units) no longer uses any extra spacing within words. However, ten pitch spacing will continue to be used in Lessons 1 and 2 for drill material.

Criterion Exercise, Unit 6

Follow the same directions as for Unit 3.

:

1 — C C C / C C / C / C ■

:

2 — G G G C C G C G G G ■

:

3 — M M M C M G M G C M ■

:

4 — F F F C M F G M F F ■

:

5 — C F M G T I D F C A L H M U N O G E M S F G R C ■

:

6 — OF IF ME FOR CAN GET COME ■

:

7 — LONG FIND MADE FROM MUCH MIGHT ■

:

8 — THING GREAT AMONG FOUND FIGHT ■

:

9 — FAMOUS HIMSELF MORNING ■

: . . . . . .

10 — MOM GOT A NICE GAME FOR US. ■

:

11 — OUR DOG HAS A LONG FUR COAT. ■

:

12 — I FOUND A GOLD COIN THIS MORNING. ■

■

:
1 — c c c / c / c c / c ■
:
2 — g g g c g g c c g g ■
:
3 — m m m g m c g m m c ■
:
4 — f f f m f c m g f f ■
:
5 — c r g f s m e g o n u m h e a c f d i t g m f c ■
:
6 — go me dog fog man fun face ■
:
7 — nice gone food game came again ■
:
8 — might great coming chief almost ■
: . . . .
9 — the frog met a dragon ■
:
10 — going to the fair. ■
:
11 — the dragon said, "come here nice frog." ■
:
12 — the frog's no longer there. ■
■

UNIT 6 - LETTERS (C,G,M,F)
Lesson 2: Lower case c,g,m,f

Elementary Level

:

1 — F g c M C f m G g m c C F G f M ■

:

2 — come Among For Moon go face ■

:

3 — mug Gone Came made fun American ■

: . . . . . .

4 — The Indian chief is hunting for game. ■

:

5 — This morning a letter came in the mail for me. ■

:

6 — His girl friend goes to another school. ■

:

7 — Life is a strange thing sometimes. ■

:

8 — The meeting is tonight in the main room. ■

■

:

1 — F G G C M C M C G F M G F C M F ■

:

2 — m f m g m g f f c c c f m c g g ■

:

3 — Clam game fight Frog Mom ■

:

4 — face cage Guess magic goof ■

■

:

5 — F F C M C F G M G C M G F M G C ■

:

6 — c g f c c g f g m f f c m m g m ■

:

7 — fog among Going More come ■

:

8 — given Farm mug Cliff ice ■

■

UNIT 7 -- LETTERS W,P,K,Q

Teacher Instructions

Lesson 1: Upper Case WPKQ

The letters W, P, K and Q are taught in this unit.

Lines 1 through 5 are for letter recognition.

Lines 6 through 8 contain words for the student to read.

Enrichment material is on lines 9 through 12. Note that quotation marks are used on line 11.

Lesson 2: Lower Case wpkq

This lesson follows the same format as Lesson 1. Enrichment material, lines 9 through 13, consists of two elephant jokes. Note that the question mark is used in lines 9 and 11, and the dash is used in line 10.

Lesson 3: WPKQ, wpkq Mixed

This lesson gives practice in reading mixed upper and lower case letters.

On line 1, the student should read the letters and say whether they are upper or lower case.

On lines 2 and 3, the student should read the words and say whether or not they are capitalized.

Enrichment material, lines 4 through 9, is a short story in which several of the sentences continue from one line to the next. Note that line 5 has two words written in all capital letters for emphasis.

Criterion Exercise, Unit 7

Follow the same directions as for Unit 3.

:
1 — W W W / W / W / W W ■
:
2 — P P P W P P W W P P ■
:
3 — K K K W P K P K W K ■
:
4 — Q Q Q W P Q K Q W Q ■
:
5 — W Q P A K P Q T W P K I C W F Q M E L K ■
:
6 — UP PUT WE WHO WAS HOW NEW WORD ■
:
7 — PICK WITH WORK KNOW WHICH PLACE ■
:
8 — QUIET QUEEN ASKED SQUARE WITHOUT ■
: . . . . . .
9 — THE POOR COW HAD SOUR MILK. ■
:
10 — THE QUEEN WAS QUICK TO SCOLD THE KING. ■
:
11 — "KEEP COOL" IS A GOOD RULE TC FOLLOW. ■
:
12 — PEOPLE WHO ARE KIND MAKE A PEACEFUL WORLD. ■
■

:

1 — w w w / w w / w w ■

:

2 — p p p w p w p p w p ■

:

3 — k k k p k w k p k w ■

:

4 — q q q k p q w q k q ■

:

5 — k l e m q f w c i k p w t q p k a p q w ■

:

6 — pup few own ask will like help what ■

:

7 — make paper water think word keep show ■

:

8 — square while would equal peace ■

: . . . . . .

9 — where does an elephant sleep? ■

:

10 — in a tree -- he knows the grass tickles. ■

:

11 — how does an elephant get in a tree? ■

:

12 -- he hides in an acorn and waits for ■

:

13 — a squirrel to take him up. ■

■

UNIT 7 - LETTERS (W,P,K,Q) Elementary Level
Lesson 2: Lower case w,p,k,q

:
1 — Q k p P K w q Q w K W q P k p W ■
:
2 — Pan quick when now Keep look ■
:
3 — Would know poor Quiet down Upon ■
: . . . .
4 — Willie wanted a piece of cake. He wanted it ■
:
5 — RIGHT NOW! He sneaked into the kitchen ■
:
6 — and quietly picked up a knife. "Willie, ■
:
7 — quit snacking," his mother called from upstairs. ■
:
8 — "How did she know?" Willie whispered to his pal Ken. ■
:
9 — "Mothers are like that," Ken said. ■
■

:

1 — W K P P K W Q Q W K Q P Q W P K ■

:

2 — k p w q w p w p q k w k p q k q ■

:

3 — Park weep knock squash Wrap ■

:

4 — quart Knee wreck saw Quick ■

■

:

5 — P W W K P Q P W K Q P Q Q W K K ■

:

6 — p k w w q k p q k w q k p w q p ■

:

7 — Want puff look Queer Keep ■

:

8 — Part quack when Skip know ■

■

Teacher Instructions

Lesson 1: Upper Case YBV

The letters Y, B and V are taught in this unit.

Lines 1 through 4 are for letter recognition.

Lines 5 through 8 contain words for the student to read.

Enrichment material is on lines 9 through 12 and consists of short sentences.

Lesson 2: Lower Case ybv

This lesson follows the same format as Lesson 1. Enrichment material, lines 9 through 14, consists of a short poem about how people and things are different.

Lesson 3: YBV, ybv Mixed

This lesson gives practice in reading mixed upper and lower case letters.

On line 1, the student should read the letters and say whether they are upper or lower case.

On lines 2 and 3, the student should read the words and say whether or not they are capitalized.

Enrichment material, lines 4 through 8, is a short story. A hyphenated word is used in lines 4 and 6.

Criterion Exercise, Unit 8

Since Units 8 and 9 each teach three letters, rather than four as in previous units, lines 1 and 2 on the criterion exercises are shorter.

On lines 1 and 2, the acceptable criterion level is 19 or more letters correct. On lines 3 and 4, the acceptable criterion level is seven words correct out of ten.

:

1 — Y Y Y / Y / Y / Y ■

:

2 — B B B Y B Y B B Y B ■

:

3 — V V V B V Y B V Y V ■

:

4 — Y B V Q B W K V L D Y I O V H T B I Y C ■

:

5 — BE BY ME BOY WHY EYE YES EVE ■

:

6 — OVER VERB BUSY HAVE THEY ONLY ■

:

7 — BRAVE EVERY BERRY ABOVE BETTER NEVER ■

:

8 — ALWAYS ABOUT BELIEVE ANYTHING ■

: . . . . . .

9 — HIGH ABOVE THE CITY, A BIG BALLOON FLOATS BY. ■

:

10 — I TRY VERY HARD TO FIND BEAUTY IN EVERYTHING. ■

:

11 — "MOVE TO THE BACK OF THE BUS," THE DRIVER YELLED. ■

:

12 — HAVE YOU EVER READ THE STORY ABOUT TOM SAWYER? ■

■

:

1 — y y y / y / y y / y ■

:

2 — b b b y b b y y b b ■

:

3 — v v v y v b b y v v ■

:

4 — c y i b t h v o i y d l v k w b q v b y ■

:

5 — my be but yet say day even ever ■

:

6 — very any many both been being ■

:

7 — your year away never number ■

:

8 — number before because however between ■

:   . . . . . .

9 — bluebird flying in the sky, ■

:

10 — do you ever wonder why ■

:

11 — a day is so short, ■

:

12 — a year is so long, ■

:

13 — and everyone sings, ■

:

14 — but not the same song? ■

■

:

1 — V b v B Y v b V y B V v Y b B Y ■

:

2 — why Buy verb Year big Very ■

:

3 — yes brave Yam vote Busy verse ■

: . . . .

4 — A fly sat on a yo-yo. A yellow bee flew by ■

:

5 — and said, "Silly fly, how long have you been ■

:

6 — sitting on that yo-yo?" "Since yesterday," ■

:

7 — the fly replied. "And believe me, my life ■

:

8 — has been nothing but ups and downs lately." ■

■

UNIT 8 - LETTERS (Y,B,V) Elementary Level
Lesson 3: Y,B,V; y,b,v mixed

:

1 — B Y Y V B V Y B V Y V B ■

:

2 — y b b y v b y b v y v v ■

:

3 — Verb boy only Year Be ■

:

4 — baby vase yes Bike eye ■

■

:

5 — V Y V B Y V B Y Y B V B ■

:

6 — b y y v b v b y v v y b ■

:

7 — brave You value Even hub ■

:

8 — Very Bead yet berry Love ■

■

Teacher Instructions

Lesson 1: Upper Case JXZ

The letters J, X and Z are taught in this unit.

Lines 1 through 4 are for letter recognition.

Lines 5 through 7 contain words for the trainee to read.

Enrichment material, lines 8 through 12, is a series of short sentences.

Lesson 2: Lower Case jxz

This lesson follows the same format as Lesson 1. Enrichment material, lines 8 through 11, is a short poem.

Lesson 3: JXZ, jxz Mixed

This lesson gives practice in reading mixed upper and lower case letters.

On line 1, the student should read the letters and say whether they are upper or lower case.

On lines 2 and 3, the student should read the words and say whether or not they are capitalized.

Enrichment material, on lines 4 through 11, is a short story. The word that has been underlined on line 5 for emphasis. On lines 8 and 10, quotation marks have been used to indicate irony. Alert the student that a new symbol, the dollar sign, appears on line 11.

Criterion Exercise, Unit 9

The scoring for this criterion exercise is the same as for Unit 8.

:

1 — J J J / J J / J / J ■

:

2 — X X X J X J X X J X ■

:

3 — Z Z Z X Z J X Z J Z ■

:

4 — X J Z C E J O X D S Z F I M J A R Z H X ■

:

5 — OX JOB JAM FOX ZOO MIX JUG ■

:

6 — JAR TAX ZERO JACK FIZZ EXTRA ■

:

7 — JUST ZOOM LAZY JUICE EXPECT ■

: . . . . . .

8 — SIX BEES BUZZED AROUND THE JAR OF JAM. ■

:

9 — I EXPECT TO GET A ZERO ON THE NEXT QUIZ. ■

:

10 — REX TOLD A CRAZY JOKE ABOUT A ZEBRA. ■

:

11 — JANE FIXED A CAKE MIX FROM A BOX. ■

:

12 — IN MEXICO, LIZARDS LIVE IN THE JUNGLE. ■

■

:

1 — j j j / j j / j j / ■

:

2 — x x x j x j j x x x ■

:

3 — z z z j z x z x j z ■

:

4 — x h z r a j m i f z s d x o j e c z j x ■

:

5 — jab six fix joy box zip jerk ■

:

6 — joke jump fuzz next crazy ■

:

7 — excited dozen jacket frozen ■

: . . . . . .

8 — when I have no job to do ■

:

9 — you can find me at the zoo, ■

:

10 — just eating popcorn from a box ■

:

11 — and talking with my friend the ox. ■

■

:

1 — Z x j X J z x Z j X Z z J x X J ■

:

2 — jelly axe Zero Japan fox jazz ■

:

3 — X-ray zoo jet doze just Expert ■

: . . . . . .

4 — Life can be a puzzle, and hardly ever what you expect. ■

:

5 — My brother Joe found that out. Last June he won a free ■

:

6 — pizza as a prize on a quiz show. He was so excited that he ■

:

7 — called a friend, and they went right down to the pizza parlor. ■

:

8 — Joe's "prize" was a six-inch pizza, plain, with no junk ■

:

9 — on it. His friend wanted the jumbo-size with everything, ■

:

10 — plus something fizzy to drink. So Joe's "free" pizza ■

:

11 — cost him $4.75, plus tax. ■

■

:

1 — X Z X J J Z X Z J Z X J ■

:

2 — j x z x j z z x j x z j ■

:

3 — Zoom six jumbo zero Jim ■

:

4 — extra Judge puzzle junk box ■

■

:

5 — J X J Z X Z J X J Z X Z ■

:

6 — x z x j z x j x z j z j ■

:

7 — ooze jury X-ray fox Zone ■

:

8 — Joe zebra expert jail Joy ■

■

Teacher Instructions

The remaining six units and related criterion exercises are different in format and purpose from the nine units just completed. Units 1 through 9 were designed to familiarize the student with the Optacon, to teach number and letter recognition, and to provide some experience in reading meaningful material printed in letter gothic typeface. Beginning with Unit 10, the instructional material is designed to offer the student a wide variety of realistic reading experiences, as well as to reinforce what he has already learned. Thus, Unit 10 provides the opportunity of increasing reading speed through practice with common words and letter combinations. Unit 11 gives practice in reading different typefaces, such as italics and a typeface similar to that found in most books. Unit 12 contains exercises in reading a variety of new formats. In Unit 13, the student receives more advanced instruction in operating the Optacon in situations outside of the classroom. Unit 14, Free Reading, introduces the student to such things as the dictionary, pamphlets, and the newspaper. Unit 15, which is optional, is intended as remedial help for those students who have difficulty with letter recognition.

The criterion exercises for Units 10 through 13 are designed to measure such skills as reading speed, tracking ability, and the ability to read different kinds of typefaces. As in criterion exercises for Units 2 through 9, there are no hard and fast rules for "passing" scores. However, some recommended criterion levels are given for each exercise to help in making the judgment about whether the student needs more practice in each unit.

A special feature of these final units should be noted. They have been designed so that they may be studied by the student independently, with minimal supervision from the teacher. Therefore, tracking cues are gradually phased out in these units. Note also that instructions for using the units are often addressed to the student and incorporated in the instructional materials.

Teacher Instructions

Lesson 1: Recognizing Common Words

This lesson gives the student practice in reading the 400 most frequently used words and numerals in typical reading material. The words are based on a rank list of frequencies shown in J. Carroll, P. Davis and B. Richman, Word Frequency Book, Boston: Houghton Mifflin Co., 1971. The list has been divided into four groups of 100 words each. Tell the student that he will find a dotted line across the page after each 100 words. Emphasize that practice with these word groups will help his reading speed.

Note that tracking cues and extra spacing have been phased out after line 4.

Lesson 2: Self-Timed Reading

Lesson 2 has four reading selections, ranging in length from 25 to 200 words. Note that there is a dotted line separating each passage, and that the side headings have been underlined.

The passages are meant to provide the student with a self-check on reading speed. Introduce the lesson as a self-check, a kind of challenge he can try over and over. Explain to the student that if he reads at 5 words a minute, he'll reach STOP on the newspaper horoscope in just 5 minutes. If he reads at 10 words a minute, he will reach STOP on the history textbook selection in 5 minutes. By reading at 20 words a minute, he will reach STOP in Aesop's Fables in 5 minutes. Finally, by reading at 40 words a minute, he will reach STOP in the adaptation from A Christmas Carol in 5 minutes.

Lesson 3: Letter Patterns

This lesson provides practice in recognizing frequent letter patterns, as a way to build reading speed.

Page 89 contains letter patterns that begin words. Tell the student that the first letter combination will be sh and that the last letter combination will be gl. Encourage him to read each line as quickly as possible, using the letter combinations as context cues.

Page 90 provides more practice in pattern recognition at the beginning of words. Tell the student that the first letter combination is ra and the last letter combination is out.

Page 91 contains letter patterns that commonly end words. Tell the student that the first letter combination is ed and the last letter combination is ity.

Page 92 provides practice in pattern recognition within words. Tell the student that the first letter combination is oo and the last letter combination is li.

Page 93 provides practice in pattern recognition at various places within words. Tell the student that the first letter combination is ea and the last letter combination is se.

Criterion Exercise, Unit 10

There is no recommended criterion level for these exercises, but they do provide a simple test of reading speed. Each line consists of a 10-word sentence. Using a stopwatch, time how many seconds it takes the student to read each line. You may check for comprehension by asking what the sentence was about.

:

1 — Here are four groups of words and numbers to practice.

:

2 — They are the 400 words and numbers you will read most often.

:

3 — If you learn to recognize these words and numbers quickly,

:

4 — it will save time when you read for pleasure.

Common words 1 to 100:

the of and a to in is you that it he for was on
are as with his they at be this from I have or by
one had not but what all were when we there can an
your which their said if do will each about how up
out them then she many some so these would other into
has more her too like him see time could no make
than first been its who now people my made over did
down only way find use may water long little very
after words called just where most know

Common words 101 to 200:

get through back much before go good new write our
used me man too any day same right look think also
around another came come work three word must because
does part even place well such here take why things
help put years different away again off went old
number great tell men say small every found still
between name should Mr home big give air line set
own under read last never us left end along while
might next sound below saw something thought both few
those always looked show large often together asked
house don't world going want

Common words 201 to 300:

school important until 1 form food keep children feet
land side without boy once animals life enough took
sometimes four head above kind began almost live page
got earth need far hand high year mother light parts
country father let night following 2 picture being study
second eyes soon times story boys since white days
ever paper hard near sentence better best across during
today others however sure means knew it's try told
young miles sun ways thing whole hear example heard
several change answer room sea against top turned 3
learn point city play toward five using himself usually

Common words 301 to 400:

money seen didn't car morning given trees I'm body
upon family later turn move face door cut done group
true half sentences red fish plants living wanted
black eat short United States run kinds book gave order
open ground lines cold really table remember 000 course
front known American space inside ago making Mrs early
I'll learned brought close nothing though started idea
call lived makes became looking add become grow draw
yet hands less John wind places behind cannot letter
among 4 A letters comes able dog shown mean English
rest perhaps certain six feel fire ready green yes

Here are some paragraphs to check your reading speed. They come from different kinds of reading material. Try to read each selection in five minutes. How fast can you read?

25 words from a newspaper horoscope:

Keep at whatever you are doing since you seem to be close to what you want to achieve. This is a day for fast action. STOP.

- -

50 words from a history textbook:

The earliest homes in New England were simple cottages with wooden sides. The roof was made of leaves and branches. There was a dirt floor. Holes were cut in the boards for windows and doors. The window spaces were covered with oiled paper. The furniture was made from split logs. STOP.

- -

100 words from Aesop's Fables:

A farmer was once driving a heavy load along a very muddy way. At last he came to a part of the road where the wheels sank halfway into the mud, and the more the horses pulled, the deeper the wheels sank. So the farmer threw down his whip, and knelt down and prayed to Hercules the Strong. "Oh Hercules, help me in my hour of need," the farmer said. But Hercules appeared to him, and said: "Tut, my good man, don't sprawl there. Get up and put your shoulder to the wheel. The gods help them that help themselves." STOP.

- -

200 words adapted from A Christmas Carol, by Charles Dickens:

After several turns around the room, Scrooge sat down again. As he threw his head back in the chair, his eyes happened to rest upon a bell that hung in the room. It was with great surprise and fear that he saw this bell begin to swing. It swung so softly at first that it made hardly a sound; but soon it rang out loudly, and so did every bell in the house. All at once the bells stopped. Then he heard a clanking noise, deep down below, as if somebody were dragging a heavy chain over the floor in the cellar. The cellar door flew open with a booming sound. Then he heard the noise much louder, on the floor below, then coming up the stairs, then coming straight toward his door. "It's humbug still!" said Scrooge. "I won't believe it." He grew pale when, without a pause, it came on through the heavy door and passed into the room before his eyes. As it came in, the flame in the fireplace leaped up. "What do you want with me?" Scrooge whispered. "Much," said the ghost. "Who are you?" asked Scrooge. "Ask me who I was," the ghost replied. STOP.

Here are some letter patterns that often start words. The letter patterns are repeated three times, followed by four words that use the pattern. You can increase your reading speed if you learn to read these letter patterns quickly.

sh sh sh shoe shut shove shape
th th th this that there those
st st st stop store steam state
sp sp sp spin span spun spool
tr tr tr trip trap trot treat
ti ti ti tie tilt tired tight
ch ch ch chop chin chair chest
wh wh wh who what where which
dr dr dr drip drop drive drove
gr gr gr grab grip grand great
pl pl pl plan play place plant
ri ri ri ripe ring rinse riddle
bl bl bl blow blew black blast
cl cl cl clip clap clear clean
sl sl sl slip slap slide slant
fl fl fl flag flop flame float
gl gl gl glue glob glass glide

:

1 — Here are some more letter patterns that often start words.

:

2 — See how quickly you can read the words.

ra ra ra rat rain rapid rather
la la la lay last later labels
ro ro ro rot roof roast rooster
he he he her heal heart heater
in in in into inform inside include
en en en enter entire enjoy envelope
un un un undo until unless unclear
re re re reply remove remark receive
de de de deny delay decide define
be be be beg best behind between
pre pre pre prefer prepare present pretend
pro pro pro profit proper provide promise
con con con confuse concern content control
com com com coming complete compare combine
dis dis dis discuss dislike disturb display
out out out outer outlaw outside outgrow

Here are some letter patterns that are often used at the end of words. See how quickly you can read the words.

ed ed ed bed fled hunted shared
en en en men ten when widen shorten
er er er over newer blacker whiter
et et et get wet pet regret
ly ly ly fly daily slowly quietly
gh gh gh rough tough enough though
ow ow ow cow grow throw below
ce ce ce ace face brace place
ck ck ck pick deck slick chick
nk nk nk pink hunk think chunk
nt nt nt hint pint want blunt
nd nd nd bend find trend grind
mp mp mp bump dump thump chump
ng ng ng wing sing hang clang
ne ne ne one fine plane throne
ing ing ing sing ring eating cooking
ful ful ful awful careful harmful colorful
ble ble ble able double fumble trouble
ove ove ove love dove drove stove
ness ness ness newness softness kindness happiness
less less less unless careless harmless colorless
tion tion tion action station motion addition
ity ity ity city pity charity ability

Some letter patterns often occur within words or stand by themselves as words. Here are some of these patterns to try.

oo	oo	oo	soon	boot	foot	noon
ee	ee	ee	deer	been	meet	street
ou	ou	ou	loud	about	shout	doubt
es	es	es	nest	rest	chest	guess
on	on	on	gone	bone	stone	phone
an	an	an	cane	pants	handle	manner
or	or	or	born	sport	score	thorn
al	al	al	halt	salt	stale	scale
ac	ac	ac	race	lace	trace	space
ar	ar	ar	wart	cart	heart	sharp
at	at	at	rate	plate	crate	later
pe	pe	pe	open	speck	opera	special
ur	ur	ur	ours	hurt	hurry	church
is	is	is	fish	wise	wrist	missile
el	el	el	sell	belt	spell	fellow
te	te	te	step	often	after	steal
il	il	il	will	fill	still	until
li	li	li	clip	flip	alike	climb

You have practiced reading letter patterns that start words, end words, and are within words. Here are some patterns that appear in all three places. See how quickly you can read them.

ea ea ea ear each early eating easy break
clean cream real hear steal peach tea idea flea

ve ve ve oven very velvet love drive have
over wave never even every seven save

le le le legs left least letter able stale
pale table lemon alley please flew sleep piglet

se se se seat see search sent seldom pose rose
nose hose those these wiser rise

:

1 — I heard a loud noise from the house next door. ■

:

2 — How do you know that they don't like each other? ■

:

3 — Each summer we go to the lake for two weeks. ■

:

4 — She sent him to the store for a dozen eggs. ■

■

:

5 — The little boy said he would run away after lunch. ■

:

6 — When the clock strikes noon it is time to leave. ■

:

7 — He seems to feel the world owes him a living. ■

:

8 — The old man was sound asleep in his rocking chair. ■

■

Teacher Instructions

In this unit the student will have practice in two common typefaces: delegate (a style used in textbooks) and light italics. Instructions to the student have been included as part of the unit; thus, it may be used as an independent reading exercise. However, as a new alphabet is introduced at the beginning of each lesson, the teacher should go through all the letters with the student and discuss how they differ from the letter gothic typeface previously learned. Be prepared to monitor and assist the student as he goes through the practice material. Note that tracking cues have been phased out in this unit.

Lesson 1: Book Style

Lesson 1 introduces the student to delegate typeface. The first page of this lesson contains number and letter drill, short words, and a short poem about an owl. At the bottom of the page, the alphabet has been printed in letter gothic for possible comparison.

Note that delegate typeface differs from letter gothic in three important respects:

1. The delegate letters have serifs at extremities (compare h's).
2. The delegate letters have variable thickness at some points (compare v's).
3. The delegate letters are sometimes a different shape (compare g's).

The student may need help in adjusting the Optacon settings or otherwise compensating for these differences.

The second page of Lesson 1 contains meaningful material in paragraph form for extra reading practice with the delegate typeface.

Lesson 2: Italic Type

Lesson 2 is designed the same way as Lesson 1, except that light italics typeface is used. While the teacher should introduce italics as being "similar" to other typefaces, except that italics are slanted, there are some differences between light italics and the other typefaces presented so far that should be pointed out. The most noticeable of these differences occur in the lower case f, y, w, v, l and i. Encourage the student to look for similarities among the various typefaces, and to read for context. An alphabet has been printed in letter gothic at the bottom of the page for purposes of comparison.

The second page of Lesson 2 contains meaningful material in paragraph form for extra reading practice with light italics typeface.

Lesson 3: Practice with Typefaces

The first page of this lesson consists of an American folk song, which is printed in both delegate and light italics. This gives the student practice in reading italics that are embedded in regular print, as is usually the case.

Italics are used for the title of the folk song, for verb forms, and for contractions. In this sense, the practice materials could be presented as an English lesson.

The second page of this lesson consists of sentences in which italics have been used for emphasis, and to identify quotations.

Criterion Exercise, Unit 11

For this unit, the criterion exercises are similar to those for Units 3 through 9; that is, they consist of scrambled letters and short words. The following criterion levels are recommended:

Exercise 1:

Lines 1 and 2: Read correctly 26 or more of the 32 letters.

Lines 3 and 4: Read correctly seven of the ten words.

Exercise 2: (if required)

Lines 5 and 6: Score the same as lines 1 and 2.

Lines 7 and 8: Score the same as lines 3 and 4.

If the student does not reach criterion level on these exercises, make careful note of the particular typeface that is causing him difficulty. Additional practice in the unit should concentrate on that typeface.

Note: The transition from gothic (non-serif) to serif typefaces is a difficult task for some readers. Since most materials are printed in typefaces with serifs, students may feel discouraged when they finish the manual and begin their free reading. If this happens, you should help the student select material at first that is similar to the typeface in this manual. Pay particular attention to finding material that is printed in sharp, clear letters with clear separation between letters and lines.

It is important, at this point in learning to read with the Optacon, that the student be encouraged to read about those things that interest him the most. However, he will quickly lose interest in reading at all, if what he selects is too difficult from the standpoint of typeface or format. Until he becomes more proficient, you should be prepared to guide his selection of material.

Not everything you read will be printed in the same type as the one you have been learning. This lesson will give you practice in the type of letters usually found in textbooks. First you will read numbers, then all the letters of the new alphabet in capitals and small letters. Next, you will read some common words. Last of all, there is a poem called, "A Wise Old Owl." See how well you can read this poem. If you have trouble, the type of letters you first learned about are printed near the bottom of the page so you can compare them with the new letters.

0 0 0 1 1 1 2 2 2 3 3 3 4 4 4 5 5 5 6 6 6 7 7 7 8 8 8 9 9 9
A A A B B B C C C D D D E E E F F F G G G H H H I I I
J J J K K K L L L M M M N N N O O O P P P Q Q Q R R R
S S S T T T U U U V V V W W W X X X Y Y Y Z Z Z

a a a b b b c c c d d d e e e f f f g g g h h h i i i
j j j k k k l l l m m m n n n o o o p p p q q q r r r
s s s t t t u u u v v v w w w x x x y y y z z z

At is to On if Up by be as he or We my go are
His the You for Can put Ask but and Say box jar here
sits Loud from Come much knew with have Only zero quiet

A wise old owl sat on an oak,
The more he saw the less he spoke;
The less he spoke the more he heard;
Why aren't we like that wise old bird?
(by Edward H. Richards)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z

This page will give you more practice in the type of print usually found in books. It's a short story about three turtles.

Once upon a time, two big turtles and a little one went to the ice cream store for a vanilla soda. Just as they started to drink their sodas, one of the big turtles looked out of the window.

"I believe it is starting to rain," he said.

"You're right," said the other big turtle. "I think we should send the little turtle home for the umbrella."

That started a big fight. The little turtle didn't want to leave, because he was afraid that the big turtles would drink his soda. There was a long argument. Finally the big turtles promised the little turtle that they would not touch his soda. So he agreed to go for the umbrella.

Three weeks went by. Then one day one big turtle said to the other one, "We might as well drink the little turtle's soda."

"I've been thinking the same thing," said the other big turtle. "Let's do it."

Just then there was a scream of rage from down near the door and a squeaky little voice yelled, "If you do, I won't go after the umbrella!"

In this lesson you will learn letters printed in italic typeface. Italic letters slant to the right. Italic letters are often used to show words that are more important, or to show that someone is being quoted. First you will read numbers, then all the letters of the italic alphabet in capitals and small letters. Next you will read some common words. Last of all, there is a short poem called "The Whale." Near the bottom of the page, the type of letters you first learned about are printed so that you can compare them with the italic letters.

0 0 0   1 1 1   2 2 2   3 3 3   4 4 4   5 5 5   6 6 6   7 7 7   8 8 8   9 9 9
A A A   B B B   C C C   D D D   E E E   F F F   G G G   H H H   I I I
J J J   K K K   L L L   M M M   N N N   O O O   P P P   Q Q Q   R R R
S S S   T T T   U U U   V V V   W W W   X X X   Y Y Y   Z Z Z

a a a   b b b   c c c   d d d   e e e   f f f   g g g   h h h   i i i
j j j   k k k   l l l   m m m   n n n   o o o   p p p   q q q   r r r
s s s   t t t   u u u   v v v   w w w   x x x   y y y   z z z

The   of   and   to   in   that   Was   they   From   One   all   can   Your
what   Said   each   About   how   then   she   just   Many   like   People   over
long   After   most   Know   Six   square   place   well   such   Lazy

The whale that wanders round the Pole
Is not a table fish.
You cannot bake or boil him whole
Nor serve him in a dish.
(by Hilaire Belloc)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m n o p q r s t u v w x y z

This page will give you more practice in reading italic letters. It tells a short story about a famous man.

Most of us know about Albert Einstein, the famous scientist who figured out the secret of the atom. We know he was very smart. But did you know he liked to tease people? Several years ago he was invited to a big dinner. He was a special guest, and he was expected to make a speech. When the time came for his speech, he got up and said, "Ladies and gentlemen, I'm sorry but I have nothing to say." Then he sat down.

The other dinner guests were surprised. They started to whisper among themselves. Then Einstein got up and said, "In case I do have something to say, I'll come back."

Six months later Einstein wrote to his friend who had given the dinner. He said, "Now I have something to say." So his friend gave another dinner, and Einstein made his speech.

Here is a famous American folk song. You may already know it.

The Big Rock Candy Mountains

In the *Big Rock Candy Mountains*,
There *is* a land *that's* fair and bright,
Where the handouts *grow* on bushes
And you *sleep* out every night,
Where the boxcars all *are* empty
And the sun *shines* every day--
Oh, the birds and the bees and the cigaret trees,
The rock-and rye springs where the whangdoodle *sings*,
In the *Big Rock Candy Mountains*.

In the *Big Rock Candy Mountains*
All the cops *have* wooden legs,
And the bull dogs all *have* rubber teeth,
And the hens *lay* softboiled eggs.
The farmer's trees *are* full of fruit,
And the barns *are* full of hay.
Oh, *I'm* bound *to go* where there *ain't* no snow,
Where the sleet *don't fall* and the wind *don't blow*,
In the *Big Rock Candy Mountains*.

In the *Big Rock Candy Mountains*,
The jails *are* made of tin,
And you *can bust* right out again
As soon as they *put* you in.
There *ain't* no shorthandled shovels
No axes, saws, or picks--
I'm a-going to stay where you *sleep* all day--
Oh, they *boiled* in oil the inventor of toil
In the *Big Rock Candy Mountains*.

Oh, *come* with me, and *we'll go see*
The Big Rock Candy Mountains.

Here are some sentences from Aesop's Fables. Notice that italic letters are used for titles of stories, and to add meaning to certain words.

1. Do not count your chickens before they are hatched. *The Milkmaid and Her Pail.*
2. I am sure the grapes are sour. *The Fox and the Grapes.*
3. It is not only fine feathers that make fine birds. *The Jay and the Peacock.*
4. United we stand, divided we fall. *The Four Oxen and the Lion.*
5. Little by little does the trick. *The Crow and the Pitcher.*
6. The boy called out *"Wolf, Wolf!"* and the villagers came out to help him. A few days afterward he tried the same trick, and again they came to his help. Shortly after this a wolf actually came, but this time the villagers thought the boy was deceiving them again and nobody came to his help. *The Shepherd's Boy.*

:

1 — a h u f w V z e I O n c K j b s ■

:

2 — *D l g M p X i o y s W q t a Z r* ■

:

3 — Can said other First dog ■

:

4 — *make Very water use more* ■

■

:

5 — S b j K C n o i E z v W f u H a ■

:

6 — *R e A t Q w s Y o i x P m G L d* ■

:

7 — The home grow Even she ■

:

8 — *asked line place Never come* ■

■

UNIT 11 - ADDITIONAL TYPEFACES
Criterion Exercise

Elementary Level

Teacher Instructions

Lesson 1: Personalized Language Experience

This lesson is built upon the language experience approach to the teaching of reading. This approach has been used in different forms since the early 1900's for both remedial and enrichment reading with a variety of students. It is designed to make both the content and language of reading lessons become relevant to the student's own experience. A variety of techniques may be used; however, the basic strategy is that the students dictate their own stories, poems, or articles. These are transcribed and returned to the student to become the reading lesson. Alternatively, students can read stories they have typed themselves.

This approach can overcome a major objection to typical reading lessons, particularly reading lessons for the beginner, i.e. that the material is often irrelevant and boring to the student. By using his own language and selecting his own content, the student can create lessons that are meaningful to him. The concepts and the vocabulary are self-selected from the student's own oral repertoire and working language pattern.

The personally dictated selection also allows the learner to concentrate on reading. The distraction of unfamiliar syntax, words whose meanings are obscure to the student, etc. are minimized.

To the blind student whose sensory experience differs from that of sighted readers, the personalized approach offers unique advantages in developing individualized learning materials and in helping the student to discover his potential.

It is not necessary to complete all exercises in this lesson. The teacher should feel free to use this lesson--enter it and exit from it--as a means of enhancing and sustaining motivation.

Materials Required

1. A typewriter that will turn out clean black copy. A carbon ribbon is preferred. Ideally, the letter gothic typeface used in the Optacon materials would be used. This typeface is available on the IBM Selectric typewriter, by purchasing an appropriate head or ball. If the student has completed the supplementary unit on other typefaces, then any of the standard typefaces can be used. A primary typewriter can be used provided the requirement of clean black copy is met.

2. White bond paper.

3. An audio recording device, e.g. a cassette recorder, tape recorder, etc. The recorder should be one that the student can operate to record his own story.

Orientation

First, orient the student to the purpose and nature of the personalized language experience. Most students take to this quite readily. In the materials, exercise 1 is a poem written by another blind student. Let the student read this poem with the Optacon to ease his concern about what and how long the self-dictated material should be. Then discuss related topics of interest to the student, topics he might record.

Student Dictation

Usually any moderately quiet corner of the classroom can be used for student dictation. The students may need some orientation to the use of the microphone, recorder, the playback and erase mechanisms, etc. Most students enjoy dictating their own materials and this phase usually presents no problem.

Transcribing

Transcribing into type should be completed as soon as practicable, by the next day if possible. Interest will be higher with prompt feedback. Furthermore, the student's memory of the material provides unique reading cues--while the material is still fresh in his mind.

During transcribing, care should be taken to preserve the content and syntax used by the student. This is not the place to change grammatical habits. Keep punctuation and other format changes to the minimum, consistent with the story. A block paragraph format (no indentation) is preferable.

If the student has typing skill or is taking a typing class, it may be feasible for him to transcribe his own recording. This could be used as a check on the accuracy of his typing.

The transcribed materials should be proofed by the experienced teacher for readability on the machine.

Exercise 1: Assist the student to read the poem on page 111. Encourage the student to make up any kind of poem he or she wishes. Limericks and non-poems will do. Keep the requirements loose. Suggest that the student can dictate several short verses or more than one short poem if desired. Poems lend themselves to more than one reading at a session. It may be useful to assist the student to attempt a more expressive reading of the poem on re-reading it.

Exercise 2: On page 112 there is a short statement and a poem expressing one blind student's opinion on long hair. After reading this opinion, encourage the student to express his or her own opinion on hair length. Disagreements with the author may stimulate an involved "letter to the editor."

If you are unable to elicit interest in hair, try one of the following topics: Dress codes in school, why parents should be less (or more) strict, what this school needs, or do students have too much homework? Suggest other topics from your own and the student's imagination.

Exercise 3: Encourage the student to make up stories that are fun for others to read. This will lead to a good collection of Optacon practice materials in a very short time. Page 113 contains some suggested story titles.

Exercise 4: In this exercise the student is encouraged to write a conversation between two well-known personalities. During transcription, be sure that each person's part of the conversation begins on a new line, flush with the left margin. Use quotation marks when appropriate in the text. Do not add "he said" or other words that the student might have omitted. Page 114 provides some ideas for the student.

In general, these conversations should be kept short and "punchy" to maintain student interest.

Lesson 2: Special Tracking Skills

This lesson presents several new formats that require special tracking skills. Since this is the kind of reading material the student is likely to encounter in real life, work closely with him on this lesson. Give some opportunity to experiment, but offer guidance and help in finding the lines of print. Note that there are dotted lines separating each exercise. Below are brief instructions which you should give to the student.

1. The first exercise is for practice with a list that is printed in columns. There are three vertical columns of numbers with a word after each number. Read number 1 and the word that follows it. Then move the camera back to number 1 and down to the next line to find number 2. Continue in this way until you come to the end of the column (that is, there are no more numbered lines in the column). To find the next column in the series, again move the camera back up to number 1. Then move the camera across the page until you find the next number, in this case it would be number 5. Continue reading this column, and then find and read the third column.

2. The second exercise gives some practice in reading a table. The table is a puzzle, with three horizontal rows of numbers and three vertical columns of numbers. There is one number missing. Read the instructions, then try to solve the puzzle.

3. The third exercise is a table of contents. You need not read every word, but read the instructions and see if you can answer the question. Note that the capital W in "Writing" is shaped like two V's.

4. The last exercise in this lesson is a short poem in free verse form in which the lines are not even. Read the poem. It begins with "I" and ends with "me."

Criterion Exercise, Unit 12

The first criterion exercise for this unit is designed to test the student's ability to track, as well as to recognize words and numerals. The second exercise tests the ability to locate typing errors for those students who do their own typing and who proofread with the Optacon.

The first exercise consists of four lines from the table of contents for the Braille Book Review. The student is to read each line and tell you the page number for each heading. Score each line in the following way:

0 if the student cannot find the number
1 if the student finds the number but reads it incorrectly
2 if the student finds the number and reads it correctly

An adequate criterion level is a score of 6 for these four lines (out of a possible total score of 8). If it appears that the student needs more practice in the unit, be sure to analyze the scores to determine if errors are due to tracking or to character recognition. For example, scores of 1 would indicate that the student is tracking correctly but making mistakes in normal recognition. Scores of 0 would indicate tracking problems. Select appropriate material (tracking or numeral) for review and practice.

Exercise 2 consists of four lines of typewritten copy. There are two typing errors in each line. Tell the student to read each line and locate the typing errors. Score as follows:

0 if the student found no errors on the line
1 if the student found 1 error on the line
2 if the student found 2 errors on the line

The criterion level is a total score of 6 out of a possible score of 8. If the criterion level is not reached, the student should have more practice in proofreading his own typing.

On this page is a poem written by an Optacon student. Can you read it? After you do, read the instructions that come after it.

How Soft Is Soft?
As soft as a caterpillar,
As soft as a hare,
Who runs so fast
To I don't know where.

How soft is soft?
As soft as a sponge,
As soft as some willows,
As soft as the softest
of Mommy's pillows.

How soft is soft?
As soft as a leaf,
As soft as a dove,
As soft and as nice
As your family's love.

- -

What did you think of the poem? Make up a poem of your own. Dictate the poem and the teacher will see that it is typed so that you can read it. Or, if you know how to type, you might want to type your own poem.

An Optacon student writes about hairstyles below. What do you think of his opinion? After you read his opinion, be sure to read the instructions that follow it.

My opinion.
I am against long hair. In the first place, you can't tell the boys from the girls. In the second place, if you have long hair you'll have trouble in athletics. Let's just leave it the way it was meant to be.

If you have long hair,
Cut it off right now,
You'll look pretty cut,
And less like a nut,
But you'll look like a girl anyhow,
no matter how it's cut.

- -

How would you answer this student? Dictate your answer and have it transcribed. After you read it, you may want to send it to a friend.

Here are four titles for short stories. Pick one of these titles and make up a short story:

1. The Day the School Disappeared
2. Aunt Doris and the Tiger
3. Little Joe Goes on TV
4. The Rock Concert Mystery

- -

You can change the title if you wish. Dictate the story and have it typed. Your teacher will help you.

After you read the story, you may want to send it to someone who would like to exchange stories and letters with you.

Think of two people who might have an interesting conversation if they met. Imagine how their conversation would go. Dictate your version of it. Here are two pairs of people who might have an interesting conversation:

1. Sitting Bull and Robin Hood
2. Abraham Lincoln and Charlie Brown

- -

Pick one of these pairs and make up a conversation. Or, select a pair of your own and make up their conversation

Below is a list of 12 of the products sold by the American Foundation for the Blind:

1. clocks
2. timers
3. scales
4. watches
5. radios
6. cards
7. puzzles
8. slates
9. frypans
10. knives
11. games
12. saucepans

Below is a Magic Square Puzzle similar to those which originated in ancient Egypt. The object is to arrange the numbers from 1 to 9 in rows so that each row--horizontal, vertical, and diagonal--adds up to 15. What number belongs in the empty square?

8	1	6
3		7
4	9	2

Below is the table of contents from a magazine called Talking Book Topics. This magazine is sent free to blind persons by the Library of Congress. Can you find the page number for children's nonfiction?

Contents

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July-August 1972

Writing As a Career for the Disabled . . 127
Essay Contest Winners 133
In Brief 134
Further Sources 137
Talking Books
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  Adult Fiction 148
  Children's Nonfiction 155
  Children's Fiction 157
Cassette Books
  Adult Nonfiction 158
  Adult Fiction 158

Here is a short poem in free verse form.

I have a friend
    who's always there
 and who knows
       all my secrets.
My friend
         is
          me.

:

1 — Adult Nonfiction 128

:

2 — Adult Fiction 129

:

3 — Children's Nonfiction 140

:

4 — Children's Fiction 146

■

:

5 — Edward closed the door end went quickyy to the desk. ■

:

6 — He openud the drawer andn took out a gun. ■

:

7 — Turning slowly, fhe pointed the hun at the man across the room. ■

:

8 — Just thin, there was a knowk at the door. ■

■

Teacher Instructions

The purpose of this unit is to prepare the student for more independent use of the Optacon outside of the classroom. In Lesson 1 you will help him learn how to make some simple equipment checks, such as were covered previously in General Instructions to the Teacher, under "Use of the Optacon Equipment." In Lesson 2, the student will have practice in adjusting the controls for extra large and extra small print, and for reading white on black print.

Lesson 1: Equipment Checks

Tell the student he is now ready to begin checking the equipment for himself. Emphasize the importance of taking good care of the Optacon so that it will deliver clear, readable print. Be sure the following points are covered:

1. The Optacon should never be dropped or handled roughly.
2. The equipment can be damaged by heat; it should never be placed where the temperature is hotter than 115° F.
3. The camera cable contains many small wires. If the cable is twisted or bent, the tactile array may not work correctly.
4. Care should be taken that foreign objects, dust or dirt do not get into the tactile array. Be sure that the hands are clean when reading, and that the finger used for reading does not have lotion or hand cream on it. Keep the finger dry from perspiration.
5. It is best to store and ship the Optacon in the wooden shipping case, and to carry it in its leather traveling case when traveling outside the classroom.
6. Be careful that foreign objects, dust or dirt do not get into the camera. The two small lamps in the camera section can be kept clean by carefully wiping them with a soft tissue.
7. It's a good idea to use some kind of leather preservative on the leather carrying case so that it will look better and last longer.

Next, work through the three following equipment checks with the student:

Battery check: Put the student's finger on the red battery check button on the back of the Optacon. Tell him that the Optacon should not be plugged in while checking the batteries. With the Optacon turned on have him turn the camera on its side so that the vibrators are buzzing. Have him press the battery check button. Explain that the pitch of the buzzing rises if the battery is well charged, and that it drops if the battery is run down. He should keep the battery charged up by plugging the Optacon into the wall at night whenever possible. It is not possible to overcharge the battery. If the batteries are worn down to a point where the Optacon will not operate, the batteries must be recharged before the Optacon can be used. It will not run just by being plugged into the wall.

Cable check: Have the student lay the cable straight out on the table, and feel for any sharp bends or cuts by moving his hands along its length. If the cable is obviously damaged, it should be returned to the manufacturer for repair. Impress on the student the importance of not twisting the cable, as this will break the wires and affect the image in the tactile array.

Row and column check: Using the horizontal line on page 122, show the student how to perform a row and column check. Refer to the section on General Instructions to the Teacher for the step-by-step procedure.

Lesson 2: Special Adjustments

Tell the student that print will often come in different sizes and that in this lesson he will be using the controls of the Optacon to adjust for these differences. Then, using page 122, go through the following exercises.

Line 1. There is a normal lower case "o" on this line. If necessary, have the student adjust the camera for normal print.

Line 2. Tell the student he will now practice adjusting the Optacon so that he can read letters that are smaller than normal.

Ask him to make the necessary adjustments and tell you what line 2 says. (The zoom button should be slid forward, and the threshold adjustment knob should be turned counterclockwise.)

Line 3. This time the print is larger than normal. Have the student adjust for this type style and tell you what is written on the line. (The zoom button should be slid back, and the threshold knob turned clockwise.)

Line 4. Tell the student that he usually will be reading dark type that is printed on light paper. Sometimes, though, he may want to read something that is light type printed on dark paper. In order to read this he will have to move the normal-invert switch to the right as he reaches over the machine. The student should feel behind the Optacon to change the position of the switch rather than turning the Optacon around. Tell the student that on line 4 he will find a section that has light type on a dark background. Ask him to change the switch and read what it says. Have him return the switch to the normal position after he has finished.

Explain to the student that:

- The threshold adjustment also may have to be changed in order to read type that is printed on colored paper.

- When reading print on thin paper, such as a telephone book, the camera may respond to print on the back of the page. This problem can be solved by placing a sheet of black paper under the page.

- When reading print on onionskin paper, a sheet of white paper placed under the page will prevent print on other pages from showing through.

A good indication of whether the student has learned to adjust the camera for different sizes of print (height and width) and for reversed print is to try him out. The same thing applies to whether he is aware of the techniques for charging and checking the battery. At first you will want to check on these abilities at school. Later you should give him an opportunity to take the Optacon home overnight. (Be sure he knows how to carry the Optacon, with the shoulder strap over his neck and one shoulder.) Have him take the battery charger as well. The following day, ask him to demonstrate on the criterion exercise, as follows:

Line 1. Tell the student to read this line and do what it says. See if he presses the battery check button. Listen to see if the Optacon has been charged or is run down.

Line 2. This line has larger-than-normal print, requiring adjustments in the threshold and magnification. Simply tell the student to read the line, then observe whether he recognizes the need for adjustment and if he can make these adjustments adequately.

Line 3. This line of bold-faced type will also require some adjustment of the controls. Again, tell the student to read the line and observe whether or not he makes the proper adjustments.

Line 4. This line of white-on-black print will require the student to use the reverse switch. Simply tell him to read the line and make whatever adjustments are necessary on his Optacon.

If the student has difficulty with any of these lines, review the appropriate checking or adjusting procedures with him.

1 — o ■

2 — What kinds of people are scientists? ■

3 — **LESSON 2 Swamps and deserts** ■

4 — Music in the Classroom 25 ☐
■

:

1 — Show the teacher how you check the battery. ■

:

2 — The truth is, drill is dull. ■

:

3 — **Last One In is a Rotten Egg** ■

:

4 — TALKING BOOK TOPICS ■

■

Teacher Instructions

This unit is designed to give the student some familiarity with the kinds of materials he will encounter in his reading outside of the classroom. In selecting these materials the major criterion has been their utility for the independent reader. No concessions have been made for the handicapped student through editing or rewriting, since this unit is intended to be a slice of the real world. Some of the lessons will be more difficult than others, and you should offer assistance when needed. To avoid discouragement, the exercises can be interspersed with reading from a book or magazine that the student has chosen himself. Be sure this student-selected material is printed in clear, readable type with good spacing between letters and lines.

Lesson 1: Reading New Materials

In Lesson 1 some guidelines or principles about printing formats have been given to prepare the student for the following lessons. In the other lessons he is given instructions.

Lesson 2: Tape Recorder Guarantee

This lesson includes words the student may need help with, such as "defective," "guarantee," or "negligence," and he may not realize that Channel Master is the company name. The decoration around the print will also be a new experience for him which may require explanation.

Lesson 3: Using a Card Catalog

If the cataloging system in your school library or the public library is different than the example, this should be explained to the student. If possible, a trip to the library so that the student can examine the card file might be worthwhile.

Lesson 4: Reading a Pamphlet

The student may be puzzled by the way in which this pamphlet is folded. If possible, give him a copy of a real pamphlet, and let him experiment with the way it is folded and with finding the best way to determine if it is right side up.

Lesson 5: Reading a Booklet

The student may require some tracking help in this lesson because of the pictures on the page. Also, the student may need to adjust the controls in order to read the two different sizes of print.

Lesson 6: Using the Dictionary

As an enrichment exercise, give the student a standard dictionary and help him look up words of his own choosing. Be sure the print is clear and readable, and that there is enough white space between letters and lines.

Lesson 7: Reading the Newspaper

As an enrichment exercise, you might bring a copy of the local newspaper to class. Other reading material can be provided also, such as articles clipped from the paper, magazine articles, and similar materials that might be available in the home or library.

Lesson 8: Using an Index

A good follow-up activity is to have the student use a book or text index to look up something in line with his or her primary interests. Since this is the last lesson in the manual, you will want to shift future reading practice (including the building of speed) to materials of the student's choosing. Encourage the student to use the Optacon frequently in a variety of contexts and compliment him or her on a job well done.

Criterion Exercise

Since this is a unit designed to encourage exploration, there are no criterion exercises for this unit.

By now you have learned to read with the Optacon, using the lessons given to you by your teacher. Now you have a chance to see how well you can read other kinds of things--such as dictionaries and newspapers. Most of your lessons had some lines and numbers that helped you find your place on the page. In free reading there won't be any special guides to help you. However, there are some hints that will make it easier for you. These are listed below in numbered paragraphs.

1 — If you feel print but cannot read any of the letters, you may have the book or paper upside down. There are other ways to find out if something is upside down. One way is if you can feel a period at the start of a sentence. The second way is if you feel quotation marks at the bottom of the line instead of at the top.

2 — Almost everything you read will be printed in lines going straight across the page from left to right. Sometimes you will want to read lists of things, and lists are often printed in rows or columns going from the top to the bottom of the page.

3 — There will always be a blank space at the top of the page. The best way to find the top line is to place the camera at the top edge of the page about halfway between the left and right margins. Then slowly move the camera down the page until you feel some letters. To find the beginning of the line, slowly move the camera to your left until you feel the blank space at the margin. You have already had some practice in doing this in some of your lessons.

4 — You will know when you come to the end of the line because you will feel blank space in the right margin. To find the beginning of the next line, trace back the same way you do in braille, except now you will use the camera instead of your finger.

5 — When you read a short line followed by a lot of blank space, this probably means you have come to the end of a paragraph.

6 — The first line of a new paragraph is usually indented. This means you must move the camera a little to the right before you can find the first word.

7 — Newspapers, dictionaries, and telephone books are printed in columns. In newspapers and some dictionaries the columns are usually separated by a line running from the top to the bottom of the page. When you feel this line it is time to move the camera back to the left. The columns in telephone books and some dictionaries are separated by a blank space. The blank space is also a sign that you should move the camera back to the left.

8 — Many of the things you read will have pictures. There are no rules about where the pictures will be on the page. You may have the camera on a picture if you can feel that the Optacon vibrators are working but they do not make letters. Often, small printed lines just below a picture describe that picture. They are called the caption. Below the caption you will find the regular lines of print to continue your reading.

9 — The next seven lessons will give you some practice in reading special kinds of materials, like the newspaper and the dictionary. We hope you have fun learning to do these new things by yourself. If you have trouble with any of the lessons, be sure to ask your teacher for help.

Sometimes you buy or are given things that come with a warranty or guarantee card inside the box. On the next page, inside the heavy black lines, is a copy of a guarantee for a tape recorder. It tells what the company will do if the tape recorder works poorly before a certain number of days go by. Nearest to the top of the black border is a fancy decoration and below it is the guarantee.

See if you can tell the number of days and what the company will do if the tape recorder doesn't work. Then ask your teacher for your next assignment.

IF THIS PRODUCT PROVES DEFECTIVE WITHIN 120 DAYS, YOUR DEALER WILL REPLACE IT WITH A NEW ONE, INSTANTLY, FREE OF CHARGE.

This Channel Master product is guaranteed to be free from defects in material and workmanship under normal use and service for a period of 120 days from the date of purchase. The selling dealer will replace it if examination on his part discloses that it is defective.

This Guarantee does not apply to cabinets, or to any unit which in our judgment has been subjected to misuse, negligence, or has been altered in any way. This Guarantee is in lieu of all other guarantees, expressed or implied, and no representative or agency is authorized to assume for Channel Master Corp. any other liability in connection with this unit.

If this product becomes defective after the guarantee expiration date, it may be returned, insured, to Channel Master, Ellenville, N.Y., 12428, for repair. Enclose check or money order for flat service fee of $10.00. In case of severe physical damage, such as broken cabinet, repair charges may be higher. If so, you will be notified of additional amount before repairs are made. Repaired unit will be returned to you with shipping charges prepaid.

CHANNEL MASTER CORP.

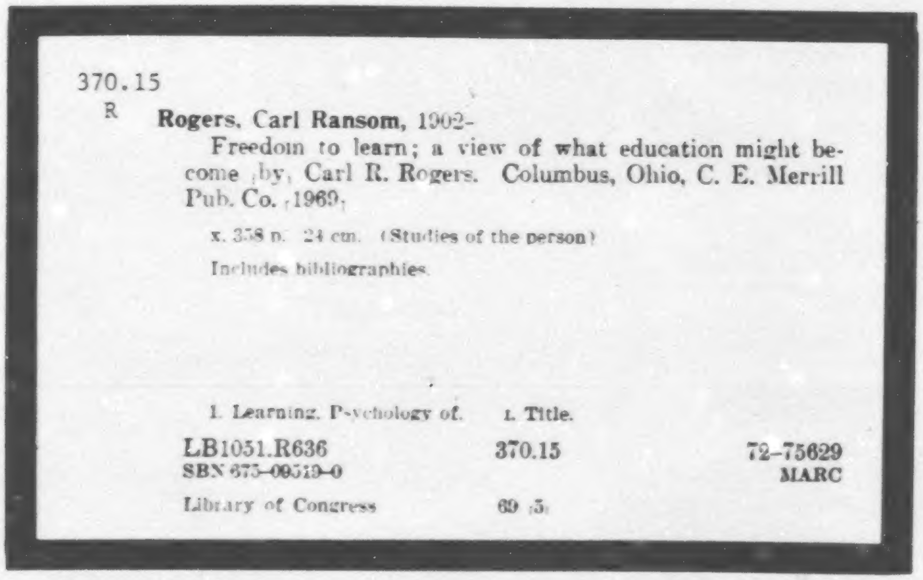
ELLENVILLE, NEW YORK 12428

Printed in Japan

This lesson will help you learn how to find a book in the library. Every library has a card catalog with separate cards for every book that the library owns. There are usually three sections in the card catalog. In one, books are listed by the last name of the author, in alphabetical order. In another section, books are listed by their titles, also in alphabetical order. In the third section, books are listed by their subject matter, in alphabetical order again. For example, if you want a book about the Civil War, you might find it in the subject catalog under "Civil War" or "U. S. History."

There is one catalog card printed at the bottom of this page. The author's name is at the top of this card. The book title is on the next line. The numbers telling where to find the books are printed in the upper left hand corner of the card. If you want help in finding a book tell the librarian the number and the letter just below the number.

Now, try to read the author's name and book title with your Optacon. Then ask your teacher for your next assignment.



370.15
R

Rogers, Carl Ransom, 1902-
Freedom to learn; a view of what education might become [by] Carl R. Rogers. Columbus, Ohio, C. E. Merrill Pub. Co. [1969]

x, 358 p. 24 cm. (Studies of the person)

Includes bibliographies.

1. Learning, Psychology of. I. Title.

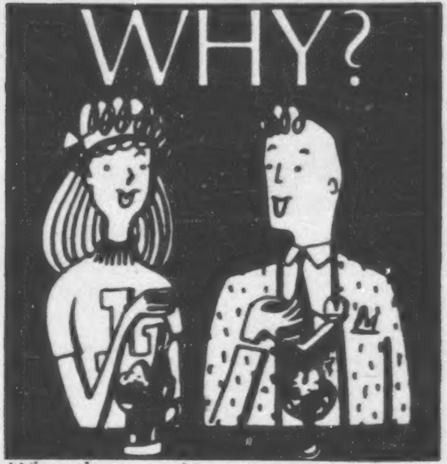
LB1051.R636 370.15 72-75629
SBN 675-09519-0 MARC

Library of Congress 69 [5]

Pamphlets are small folded papers telling about one topic. They are usually handed out or mailed to people free of charge. Their main purpose is to inform the reader about something. When people run for political office they often mail pamphlets to voters. Many medical groups use pamphlets to tell the public about matters related to good health. On the next page there is a pamphlet printed by the American Cancer Society. It tells young people about the harm that can come from smoking. This page has been folded. When you open it up, there are two long, narrow columns of print.

Read the first two columns, and then fold the section on the right over, so that you can read the third column. When you have finished, ask your teacher for your next assignment.

Smoke Cigarettes?



What does smoking cigarettes get you, anyway? If you're especially lucky, and if you smoke about a pack a day, in a year's time you'll suffer a $150 hole in your wallet.

If you're not quite so lucky, you may experience an unpleasant cough, loss of stamina for athletics. These problems can hit you right now—while you're still in your teens—and increase your chances of having disabling illnesses such as heart disease, bronchitis, emphysema. If you start smoking when you are young, these ailments may not hold off until you reach 40 or 50. They can begin affecting you earlier than that.

How smoke harms you

Here's how cigarettes contribute to disease and death: cigarette smoke paralyzes the cilia (tiny hairs lining the bronchial tubes) that sweep foreign particles out of the lungs. Without this protective action, healthy lung tissue can be injured, even destroyed, by particles in the smoke which remain in the lung.

A smoker's chances

Lung cancer is the leading cause of cancer deaths in the U.S. today. Chances that cigarette smokers (as compared with nonsmokers) will die of lung cancer rise sharply the more they smoke. And even with surgery, the most effective treatment for lung cancer we have, only five percent are saved. That's *one* patient in *twenty*....

These are some of the physiological facts—what smoking does *to* you. What is it that smoking does *for* you?

Puts you in the "in" crowd? Think about that a bit. Are you really more popular because you smoke? There's so much more to becoming part of the crowd—your personality, abilities, and individuality, for instance. Look around, too. Notice how many leaders in your school are nonsmokers. They aren't afraid to act on their own; nor do they need cigarettes as a status symbol, do you?

Makes you more grownup? Think about it. Perhaps it does make you feel more grownup at first, because all the ads and TV commercials tell you how sophisticated smoking is supposed to be. But, again, look around you. Many, many people have stopped smoking in recent years. Ask them why. A wise person weighs the facts about cigarettes and has the courage to say "no, thanks" to an obviously harmful habit.

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The following page is taken from a booklet called The World Traveler. This page was chosen because it will give you practice in reading in a magazine that has pictures. The top half of the page has a picture of an ocean liner and another picture of a man steering the ship. There is a third picture in the bottom right hand corner. The story is about a girl named Diana, who is traveling from New York to Holland. Read the print on the left hand side of the page, then see if you can find and read the caption that tells about the third picture. After you finish this lesson, ask your teacher for the next assignment.

HOLLAND-AMERICA LINE

From the bridge,
this man looks out on the ocean
as he steers the ship.

Diana explored every part of the ship. She went to the top deck and visited a room called the bridge. Here Diana watched a man as he steered the ship through the water.

She visited the engine room near the bottom of the ship. Here she saw men working to keep the big steam engines running. Diana even visited one of the kitchens. Here she helped one of the cooks.

Other crew members are
cooks. Diana helps a cook
decorate birthday cakes.

This exercise will help you learn how to use a dictionary. Read all the instructions in paragraph 1 below before you do anything else.

1 — Page 136 is a sample of Webster's New Elementary Dictionary. The print in dictionaries is usually very small, so you may need to set the zoom on the camera to make the letters larger. You should also know that the lines in dictionaries are printed very close together. It will be hard to read unless you hold the camera very steady and move it slowly. There are two columns of words on the page. The words are printed in alphabetical order. Two words are printed in large type in the upper left-hand and upper right-hand corner of the page. These are like the guide words in your braille dictionary--they help you find the right page when you are looking up a word. Now turn to page 136 and find the guide words and answer these questions: What is the first word on the page? What is the last word on the page? When you think you know, turn back to this page and read paragraph 2.

2 — The guide words are "ginger ale" and "glass." Now turn again to the sample page and find out what glass is made out of. Then read paragraph 3 below.

3 — Glass is made from sand heated with chemicals. Now see if you can find out what a "girth" is by looking in the first column of the page. Then read paragraph 4 below.

4 — A "girth" is a band put around the body of an animal to hold something on its back, like a saddle. Next, see if you can find out what a glacier is. Hint: It's near the top of the second column. Then come back and read paragraph 5.

5 — It will take some practice to be able to use the dictionary easily. A good way to get this practice is to ask your teacher to help you look up some words that you have thought of yourself. Then ask your teacher for your next assignment.

ginger ale *n* : a nonalcoholic drink flavored with ginger

gin·ger·bread \ˈjin-jər-ˌbred\ *n* : a molasses cake flavored with ginger

^{1}**gin·ger·ly** \ˈjin-jər-lē\ *adj* : very cautious

^{2}**gingerly** *adv* : very cautiously

gin·ger·snap \ˈjin-jər-ˌsnap\ *n* : a thin brittle cookie flavored with ginger

ging·ham \ˈging-əm\ *n* : a clothing fabric usually of yarn-dyed cotton in plain weave

gip·sy *var of* GYPSY

gi·raffe \jə-ˈraf\ *n* : a cud-chewing long-necked spotted mammal of Africa

gird \ˈgərd\ *vb* **gird·ed** *or* **girt** \ˈgərt\; **gird·ing** 1 : to encircle or fasten with or as if with a belt or cord 2 : to prepare or brace oneself

gird·er \ˈgərd-ər\ *n* : a horizontal main supporting beam ⟨a *girder* of a bridge⟩

^{1}**gir·dle** \ˈgərd-l\ *n* 1 : something (as a belt or sash) that encircles or binds 2 : a light corset worn below the waist

^{2}**girdle** *vb* **gir·dled**; **gir·dling** 1 : to bind with or as if with a girdle, belt, or sash : ENCIRCLE 2 : to strip a ring of bark from a tree trunk

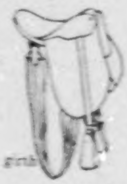
girl \ˈgərl\ *n* 1 : a female child or young woman 2 : a female servant

girl·hood \ˈgərl-ˌhu̇d\ *n* : the state or time of being a girl

girl·ish \ˈgər-lish\ *adj* : typical of or suitable for a girl ⟨*girlish* laughter⟩

girl scout *n* : a member of the Girl Scouts of the United States of America

girth \ˈgərth\ *n* 1 : a band put around the body of an animal to hold something (as a saddle) on its back 2 : the measure or distance around something ⟨a man of huge *girth*⟩ ⟨the *girth* of a tree⟩



gist \ˈjist\ *n* : the main point of a matter

^{1}**give** \ˈgiv\ *vb* **gave** \ˈgāv\; **giv·en** \ˈgiv-ən\; **giv·ing** 1 : to hand over to be kept : PRESENT ⟨*give* a friend a Christmas present⟩ 2 : PAY 3 : UTTER ⟨*give* a yell⟩ ⟨*give* a speech⟩ 4 : FURNISH, PROVIDE ⟨a candle that *gives* light⟩ ⟨*give* a party⟩ 5 : to cause to have ⟨*give* someone a lot of trouble⟩ 6 : GRANT, ALLOW ⟨*give* permission⟩ 7 : to yield slightly — **give in** : SURRENDER, YIELD ⟨*give in* to a repeated request⟩ — **give up** 1 : to part with : STOP, ABANDON ⟨finally *gave up* the idea⟩ 2 : to stop trying or opposing : QUIT ⟨refused to *give up* despite the losses⟩ — **give way** 1 : to yield oneself without restraint or control 2 : to break down : COLLAPSE

^{2}**give** *n* : a yielding or giving way : SPRING

giv·en \ˈgiv-ən\ *adj* 1 : DISPOSED, INCLINED ⟨one *given* to outbursts of temper⟩ 2 : STATED

given name *n* : a first name (as *John*)

giz·zard \ˈgiz-ərd\ *n* : a muscular enlargement of the digestive tube (as of a bird) in which food is churned and ground small

gla·cial \ˈglā-shəl\ *adj* 1 : extremely cold 2 : of or relating to glaciers

gla·cier \ˈglā-shər\ *n* : a large body of ice moving slowly down a slope or over a wide area of land

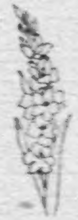
glad \ˈglad\ *adj* **glad·der**; **glad·dest** 1 : HAPPY, JOYFUL 2 : bringing or arousing joy ⟨*glad* tidings⟩ 3 : GAY, BRIGHT

glad·den \ˈglad-n\ *vb* : to make glad

glade \ˈglād\ *n* : a grassy open space in a forest

glad·i·a·tor \ˈglad-ē-ˌāt-ər\ *n* : one of a pair of armed men forced to fight to the death for the entertainment of the public in ancient Rome

glad·i·o·lus \ˌglad-ē-ˈō-ləs\ *n, pl* **glad·i·o·li** \-lē, -ˌlī\ *or* **gladiolus** *or* **glad·i·o·lus·es** : a plant with stiff sword-shaped leaves and spikes of brilliantly colored flowers


gladiolus

glad·ly \ˈglad-lē\ *adv* : WILLINGLY, CHEERFULLY, JOYFULLY

glad·ness \ˈglad-nəs\ *n* : JOY, HAPPINESS

glad·some \ˈglad-səm\ *adj* : giving or showing joy

glam·or·ous \ˈglam-ə-rəs\ *adj* : full of glamour

glam·our *or* **glam·or** \ˈglam-ər\ *n* 1 : charm or attractiveness especially when it is deceptive 2 : alluring or fascinating personal attraction

^{1}**glance** \ˈglans\ *vb* **glanced**; **glanc·ing** 1 : to strike at an angle and fly off to one side 2 : to give a hasty look

^{2}**glance** *n* : a quick look : GLIMPSE

gland \ˈgland\ *n* : an organ in the body that prepares a substance to be used by the body or discharged from it ⟨a saliva *gland*⟩

glan·du·lar \ˈglan-jə-lər\ *adj* : of, resembling, or having to do with glands

^{1}**glare** \ˈglaər\ *vb* **glared**; **glar·ing** 1 : to shine with a dazzling light 2 : to look fiercely or angrily

^{2}**glare** *n* 1 : a bright dazzling light 2 : a fierce look

glar·ing \ˈglaər-ing\ *adj* 1 : dazzlingly bright ⟨*glaring* sunlight⟩ 2 : FIERCE, ANGRY ⟨a *glaring* look⟩ 3 : very conspicuous : OBVIOUS

^{1}**glass** \ˈglas\ *n* 1 : a hard brittle usually transparent substance commonly made from sand heated with chemicals

This lesson will give you some practice in reading some things from a newspaper. You will probably find it hard to read a newspaper without some help, for several reasons. Newspaper pages are very large. Each page has several stories. There are often drawings, photographs, and ads on the page. There are no set rules about where you will find pictures and ads. Each story will have a headline, which tells briefly what the story is about. Letters in the headlines are larger than letters in the story. The lines are printed close together. Newspaper stories are printed in columns. The stories usually do not go all the way down the page. Instead, stories usually are printed part of the way down a column and then are continued in the next column. The stories on a page are put together something like a big jigsaw puzzle. However, you might like to try reading some parts of the paper, such as the weather report, or the TV programs. If you do, read paragraph 1 beginning on the next line.

1 — The next page has three articles from a typical newspaper. The first article is a story about the Skylab astronauts. There is a headline in large print that goes across the page on two lines. Below the headline, there are three columns of small print that tell the story of a space walk. Turn to the next page and read as much of the story as you like. Then read paragraph 2 on this page.

2 — Under the astronaut story, in the lower left-hand part of the page, is the weather report. See if you can find out what the high temperature will be on Sunday. Then read paragraph 3 on this page.

3 — The high temperature Sunday will be in the upper 50's to the mid 60's. Just below the weather report there is an index to where different sections of the news can be found. See if you can find out the pages where you would find news about sports. Then read paragraph 4 on this page.

4 — News about sports is on pages 26 through 28. You will find a TV schedule on the lower right-hand corner of the newspaper page. There is a large headline, followed by a list of programs in small print. See if you can find out what is on TV at 8:30 and which channel it is on. Then ask your teacher for your next assignment.

Skylab astronauts preparing for fourth and final space walk

SPACE CENTER, Houston (AP) — Skylab 3's astronauts are preparing for the last space walk of their long mission to retrieve 38,000 photos of the sun, stars and comet Kohoutek. Mission commander Gerald P. Carr and Edward G. Gibson plan to leave the space laboratory about 8 a.m. PDT Sunday for the 4½-hour task.

Carr will climb a ladder on a mount that contains six camera telescopes and will pass canisters of film to Gibson.

William R. Pogue will remain inside to control the space station and monitor outside activity.

Carr and Gibson were to devote several hours today to readying their space suits and reviewing procedures for the walk, the fourth of the mission.

The astronauts also were to take their last observations of the sun today through the telescopes, essentially winding up the scientific phase of the mission.

They are in the final week of a record 84-day flight, heading for splashdown in the Pacific Ocean at 11:17 a.m. EDT Friday. The landing area is about 175 miles southwest of San Diego, Calif.

After the space walk, the astronauts will concentrate on final medical experiments and packing up film and other data to bring back to earth.

Included in the cargo will be about 75,000 photos taken through the telescopes, 19,400 pictures and 19 miles of magnetic tape from earth resources cameras and sensors, medical information and other scientific data.

Carr, Pogue and Gibson also plan extensive checks of the Apollo ferry ship before casting off from the 118-foot-long station.

Flight director Phil Shaffer said that checks by mission control indicated the craft was in excellent condition.

The astronauts also are in excellent shape, according to a medical briefing held for newsmen Friday.

"We bave a crew that is in good health," said Dr. Royce Hawkins, chief astronaut physician. "We feel we'll find them in good condition when they return to earth."

Weather

Fair through Sunday, but with some cloudiness Sunday. High Sunday in the upper 50s to the mid 60s; low tonight in the 30s. Northwest winds 5 to 15 miles per hour.

Barometer at 8 a.m.	30.28
Humidity at noon	48%

(More weather data on page 3.)

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Tonight's Star Programs

8:00 p.m.—CBS Special: "The Little Mermaid." Hans Christian Andersen's classic fairy tale about a beautiful sea creature in search of a soul. Her unrequited love for a handsome human prince leads her to give up the limbo of her immortal undersea world (Ch. 5).

8:30 p.m.—CBS Special: "Dr. Seuss' Horton Hears a Who." Animated feature in which the big-hearted elephant fights to preserve the lives of the tiny inhabitants of Whoville (Ch. 5).

9:00 p.m.—CBS Special: "Mitzi . . . A Tribute to the American Housewife." A light-hearted salute, in music and humor, to the woman of the house stars Mitzi Gaynor, Suzanne Pleshette and Jane Withers (Ch. 5).

10:00 p.m.—KPIX Special: "The Energy Crisis Comes Home, Part III . . . Solutions." A look at some of the possible solutions to energy and gasoline problems in the Bay Area (Ch. 5).

RADIO

8:00 p.m.—Philadelphia Orchestra Broadcast. Weber's Overture to Oberon, Dallapiccola's Variations for Orchestra, Haydn's Symphony No. 91 and Schumann's Symphony No. 4. Max Rudolf conducts (KKHI, 1550).

This lesson will help you learn how to use books when you want to look something up. Most of the books that you have in school, such as textbooks and encyclopedias, have an index in the back. This index is arranged alphabetically, much like the dictionary. However, instead of word lists, the index has lists of subjects that are in the book. On the next page there is part of an index from a textbook about the Western states. The main subject headings are in dark print. There are other topics in lighter print under the main headings. Suppose you are writing a report about Utah. Using page 140 see if you can find which pages of the book would tell about Utah. Then read paragraph 1 on this page.

1 — The index shows that you could find out about Utah on pages 345 through 349. This index also has some letters in italics next to some of the page numbers. The letter *p* means that there is a picture on that page. The letter *t* means that there is a table on that page, and the *m* stands for map. Can you find the two pages that have maps of Utah on them? Try it, and then read paragraph 2 below.

2 — There are maps of Utah on pages 305 and 346. Now suppose that you want to talk about Utah's climate in your report. See if you can find which page tells about the climate. Then read paragraph 3 below.

3 — The climate of Utah is described on page 346. You can use page 139 for more practice in using an index. Even better, you can ask your teacher to help you pick out one of your own textbooks to practice with.

This is the last lesson in your Optacon book. We hope you will continue to read as much as you can with the Optacon. You will find that the more you practice the faster you can read. Good luck.

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Teacher Instructions

Purpose of the Unit

The Remediation and Special Help Unit is designed to help those students who are having trouble identifying or discriminating individual letters or characters. It is intended to be an optional unit, for individual learning difficulties. Not every student may need all or even parts of this remedial unit. If the student is able to identify letters adequately using the regular instructional unit, the remedial unit should be bypassed. The unit is designed to be entered at any point that a learning difficulty is encountered, e.g. a particular letter. Few students would need special help for more than a few specific letters or characters.

Organization

The remediation unit is divided into three lessons:

1. Lesson 1, numeral problems, deals with recognizing the numerals and discriminating them from other characters.
2. Lesson 2 (related to basic instructional units 3-9) deals with recognizing the 26 letters of the alphabet and discriminating them from other characters.
3. Lesson 3, special letter problems, deals with the problem of discriminating between pairs of letters that are easily confused. For example, distinguishing between "a" and "e" is sometimes difficult for the learner.

General Instructions

The particular character that the student is having trouble recognizing or discriminating from other characters should be identified during instruction or from the criterion test. Before turning to the remediation unit, it is recommended that the student and teacher work with the thermoform sheets containing raised letters and numerals. Have the student trace the raised letter or numeral, while directing the student's attention to those pattern features that uniquely identify the letter or numeral in question. Then, find the appropriate lines in this remediation unit for further practice.

While working in this unit, it may be advisable to do the tracking for the student. This will allow the student to concentrate on character recognition.

The remediation activity should focus on the letter or numeral with which the student is having difficulty. Therefore, limit the student's task to identifying the letter or numeral in question _only_. The lessons provide both easy and more difficult discrimination tasks for each character. The student should not be required to identify the other shapes used as distractors. If the student perceives that these shapes are _not_ the character in question, that is sufficient.

It is desirable to keep the remedial session relatively short or to interpose other activities. Some students may experience a temporary decrease in the ability to feel the characters after concentrating for extended periods. If this occurs, be prepared to go on to another activity.

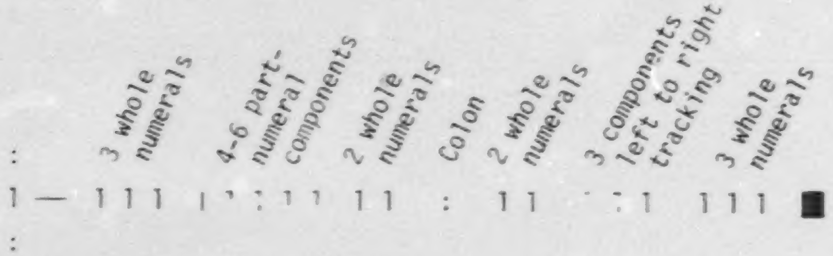
Lesson 1: Numeral Problems

Lesson 1 offers remediation in numerals, which are presented in the same sequence as they are introduced in Unit 2. The lesson follows a consistent format in which the _odd_ numbered lines deal with the _recognition_ of the numeral in question. The _even_ numbered lines deal with the _discrimination_ of that numeral from other shapes.

The first half of each _odd-numbered line_ begins with three whole numbers. Then four or five _parts_ of the whole number are presented, so that the student may focus on its more distinctive components. This is followed by two whole numerals again.

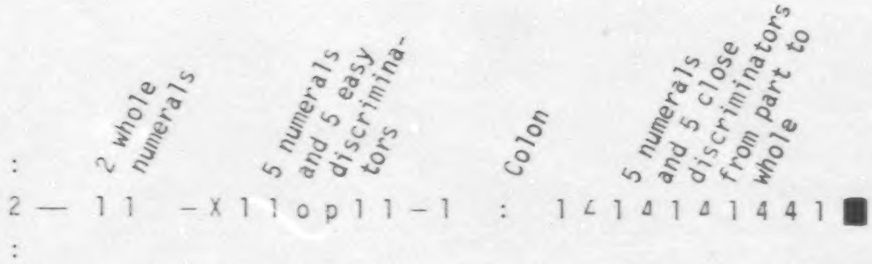
In the middle of the odd-numbered line there is a colon, which signals a change in the learning task. First, two whole numbers are presented. Then, three components of the number gradually appear, building from left to right in the same way that tracking reveals the emerging shape of the numeral. Then three whole numbers appear at the end of the line.

Shown below is an example of an odd-numbered line.



The even-numbered lines are designed to help the student discriminate the character from other shapes, once he has been able to recognize it. The line starts with two whole numbers. Then, there is a set of 10 characters, five of which are the number in question and five of which are shapes that are very different and therefore easily discriminable. Here the student should be asked to say whether each character is or is not the number being practiced.

The colon marks the start of a different learning task, as it did in the odd-numbered lines. To the right of the colon there are 10 shapes. Five of these are the number in question. The other five shapes are different but have some similarities to the number in question, and therefore may be easily confused. In this exercise, the number being practiced is presented whole, while the close discriminator is presented first in its distinctive parts and then as a whole character. In the example of the even-numbered line shown below, the 4 has been used as a close discriminator to the 1. Only the part of the 4 that makes it different from the 1 is given at first; then the 4 is gradually completed until at the right of the line both the 1 and the 4 are complete. In this example, the student should be asked to identify only the 1's.


2 whole numerals
5 numerals and 5 easy discriminators
Colon
5 numerals and 5 close discriminators from part to whole

Lesson 2: Letter Problems

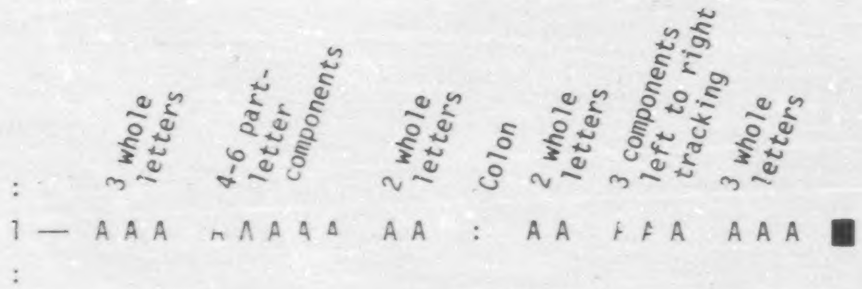
Lesson 2, which offers remediation in the 26 letters, follows the same general format as Lesson 1. Letters are presented in the same sequence as they are introduced in the basic units. For example, the first letters dealt with in the remediation unit are A,T,R,E, followed by I,H,O,S. Within a set of letters, capitals are presented first and then the small letters. Each page of Lesson 2 in Unit 15 corresponds with a basic unit of instruction.

Each page of Lesson 2 follows a consistent format in which the odd-numbered lines deal with the recognition of the letter in question. The even-numbered lines deal with the discrimination of that letter from other shapes.

The same rationale explained for Lesson 1 applies to Lesson 2. To summarize briefly:

- The first half of each odd-numbered line presents the whole letter along with distinctive parts of that letter.
- The second half of each odd-numbered line presents the whole letter along with parts of that letter as it would appear gradually during tracking.

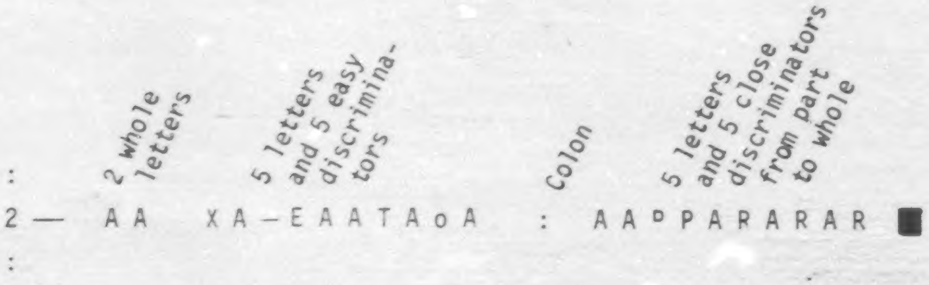
On the next page is an example of an odd-numbered line from Lesson 2:


3 whole letters
4-6 part-letter components
2 whole letters
Colon
2 whole letters
3 components left to right tracking
3 whole letters
1 — A A A
A A : A A
A A A

- The first half of each even-numbered line presents the whole letter along with shapes that are very different and thus easily discriminable.

- The second half of each even-numbered line presents the letter along with shapes that are similar and thus difficult to discriminate. The letter being practiced is presented whole, while the close discriminator is presented first in its distinctive parts and then whole.

Example of an even-numbered line from Lesson 2:


2 whole letters
5 letters and 5 easy discriminators
Colon
5 letters and 5 close discriminators from part to whole
2 — A A X A — E A A T A o A : A A P A R A R A R

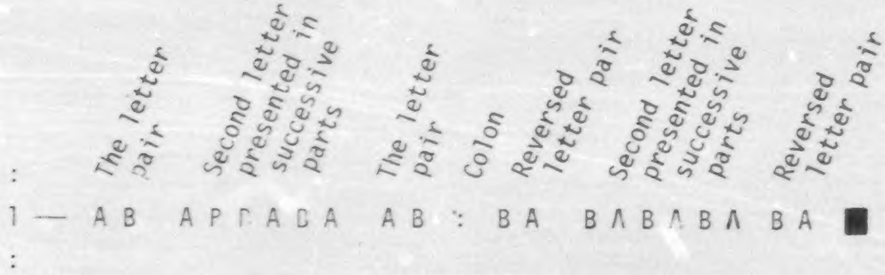
As in Lesson 1, the student's task in Lesson 2 is to identify only the letter being practiced; he should not be required to name the other shapes and letters.

Lesson 3: Discriminating Between Similar Letters

Lesson 3 offers remedial help in discriminating between pairs of letters that are sometimes confused. The paired letters are arranged alphabetically according to the first letter of the alphabet for the pair. For example, the pair "R,A" is located under A. Within the alphabetical sequence, the capital version of the letters is presented first, followed by the lower case letters.

For each letter pair to be discriminated, two lines of instructional material are given. The odd-numbered line begins with two whole letters. Then, one letter of the pair is presented whole, along with parts of the other letter that distinguish it most readily from the first letter. The part letter is successively presented in more complete form until the entire letter is formed. In the second half of the line, after the colon, the same process is repeated but this time the pair is reversed.

An example of an odd-numbered line in Lesson 3:


The letter pair
Second letter presented in successive parts
The letter pair
Colon
Reversed letter pair
Second letter presented in successive parts
Reversed letter pair
1 — A B A P Γ A B A A B : B A B Λ B A B Λ B A

In using the odd-numbered lines, the student should be asked to identify only one of the paired letters at a time. For example, in the line above, the student should be asked to identify which are the A's in the first half of the line. In the second half of the line, the student is asked to identify the B's.

The even-numbered lines in Lesson 3 simply present pairs of letters in random order. These lines are designed for practice, and can also be used as a test of the student's skill in discrimination. For these even-numbered lines, the student should be asked to identify both letters in each line.

:

1 — 1 1 1 1 ˙ : 1 1 1 1 1 : 1 1 ˙ : 1 1 1 1 ■

:

2 — 1 1 – X 1 1 o p 1 1 – 1 : 1 ∠ 1 4 1 4 1 4 4 1 ■

:

3 — 2 2 2 ? ∠ ? 2 2 2 : 2 2 ∠ ∠ 2 2 2 2 ■

:

4 — 2 2 X o 2 p 2 – 2 2 c 2 : 2 ɔ 2 3 2 3 2 3 3 2 ■

:

5 — 3 3 3 ˀ ɔ ɔ 3 3 3 : 3 3 ɔ 3 3 3 3 3 ■

:

6 — 3 3 o 3 – X 3 p 1 3 3 L 3 : 3 ſ 3 C 3 C G 3 6 3 ■

:

7 — 4 4 4 4 | ∠ 4 4 4 : 4 4 ∠ ∠ 4 4 4 4 ■

:

8 — 4 4 p – 4 4 o / 4 / 4 4 : 4 ₋ 4 ∠ 4 ∠ 2 4 2 4 ■

:

9 — 5 5 5 ⌐ b ⁵ 5 5 5 : 5 5 5 5 5 5 5 5 ■

:

10 — 5 5 / 5 X o 1 5 5 p 5 5 : 5 6 5 6 5 6 5 6 6 5 ■

:

11 — 6 6 6 C ɔ 5 G 6 6 : 6 6 ι C E 6 6 6 ■

:

12 — 6 6 – 6 6 p 6 X 1 6 6 o : 6 ° 6 ° 6 9 6 6 9 9 ■

:

13 — 7 7 7 ⁻ / 7 7 7 7 : 7 7 ⁻ 7 7 7 7 7 ■

:

14 — 7 7 – o 7 p b 7 7 7 X 7 : 7 ° 7 9 7 9 7 9 7 9 ■

:

15 — 8 8 8 ° o 8 8 8 8 : 8 8 ε ε 8 8 8 8 ■

:

16 — 8 8 p 8 2 – 8 8 T 8 8 / : 8 ł 8 + 8 4 8 4 8 4 ■

■

```
:
17 — 9 9 9 ° , 9 y 9 9 : 9 9 ' c 5 9 9 9 ■
:
18 — 9 9 - p 9 9 X 9 o 9 c 9 : 9 o 9 ȣ 9 6 9 6 9 8 ■
:
19 — 0 0 0 ( ) ⁿ G 0 : 0 0 ( ( C 0 0 0 ■
:
20 — 0 0 X 0 - 0 1 / 0 0 L 0 : 0 5 0 ≈ 0 x 0 8 8 0 ■
■
```

```
:
1 — A A A ₙ Λ A A ᴬ A A : A A / A A A A A ■
:
2 — A A X A – E A A T A o A : A A ᴾ P A R A R A R ■
:
3 — T T T ¯ ı ⊤ ᵀ T T : T T ¯ 1 T T T T ■
:
4 — T T o p T T / 3 T X T T : T T ₙ R T R T R T R ■
:
5 — R R R I ᴾ ₙ ? R R : R R F F R R R R ■
:
6 — R R 6 R X o R / R R p R : R E R E R E R E R E ■
:
7 — E E E I Ξ E E E E : E E I E E E E E ■
:
8 — E E o E / X E E p E 8 E : E ¯ E ! E T E T T E ■
:
9 — a a a ˥ ₒ ˥ a a a : a a ¿ ᵃ ᵃ a a a ■
:
10 — a a X T a / a a 7 a – a : a ⌒ a r a c e a e a ■
:
11 — t t t ι ⁻ ⁺ ± t t : t t ᵗ t t t t t ■
:
12 — t t 5 X t t A t o R t t : t ᵔ t e t e t e t e ■
:
13 — r r r ı ⁻ ʳ ʳ r r : r r ı ʳ r r r r ■
:
14 — r r A X r – r 8 r r / r : r ᵕ r ᵕ r c e r e r ■
:
15 — e e e   c ᵔ e e e : e e ( ᴄ ɛ e e e ■
:
16 — e e T p e e 5 e A e X e : e ı e ᴊ e ᴊ e ∩ e o ■
■
```

:

1 — I I I ' : : I I I I : I I : I I I I I ■

:

2 — I I o 0 I X I – I I 8 I : I - I - I ¬ ⊦ I H I ■

:

3 — H H H - II ⊦ P H H : H H I ⊦ ⊦ H H H ■

:

4 — H H o p H / H 2 H r H H : H / H Λ H Λ H A H A ■

:

5 — 0 0 0 ( ) ^ ᴗ 0 0 : 0 0 ((C 0 0 0 ■

:

6 — 0 0 A H 0 – 0 7 0 0 I 0 : 0 ` ɔ 0 0 S 0 S 0 S ■

:

7 — S S S ` S S S S S : S S S S S S S S ■

:

8 — S S i i S o S – 4 S S S : S F S R S P S R S R ■

:

9 — i i i ı ˙ i ; i i : i i ˙ i i i i i ■

:

10 — i i S H i X i – i i A i : i ˯ i ʟ i t i t t i ■

:

11 — h h h l n n h h h : h h ł ł h h h h ■

:

12 — h h X 0 h h – 2 h h / h : h c a h h a h a h a ■

:

13 — o o o (^ ᴗ c o o : o o (c c o o o ■

:

14 — o o X o T A o o o 4 o – : o (o c o e o e o e ■

:

15 — s s s ` : s : s s : s s : s s s s s ■

:

16 — s s B s A s – I s s T s : s ᴗ s ᴗ s c c s e s ■

■

UNIT 15 - REMEDIATION
Lesson 2: Alphabet (I,H,O,S)

Elementary Level

```
:
1 — D D D I Ɔ Ո C D D : D D I C C D D D ■
:
2 — D D - o D / D t D D p D : D ı D ( D C D C C D ■
:
3 — L L L I _ L Ŀ L L : L L I l L L L L ■
:
4 — L L o L s 8 L / L L a L : L ' L T L : L I I L ■
:
5 — U U U L I II U U U : U U L L U U U U ■
:
6 — U U p X U - U U 9 o U U : U \ U / U ▾ U V V U ■
:
7 — N N N ⁝ \ N N N N : N N ᛚ N N N N N ■
:
8 — N N - o N S N p N N t N : N - N ⊣ H N h N H N ■
:
9 — d d d a ! a a d d : d d c c d d d d ■
:
10 — d d U p d X d d - d L d : d ɔ d d ɒ d ɒ d b b ■
:
11 — 1 1 1 ı ' : i 1 1 : 1 1 ˉ ˉ ˉ 1 1 1 ■
:
12 — 1 1 0 1 A 1 - e 1 1 a 1 : 1 n 1 h 1 ṅ n 1 h 1 ■
:
13 — u u u u ı ıı u u u : u u ı ι u u u u ■
:
14 — u u L u X A u 2 u u O u : u ^ u c u ∩ u c u o ■
:
15 — n n n r ı ٦ ıı n n : n n ı r n n n n ■
:
16 — n n A - n X n p n n 8 n : n a n ʾ n ɛ n a n a ■
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1 — C C C ᒥ ᴗ (ͻ C C : C C ((C C C C ■

:

2 — C C – A C C r C X C o C : C ˥ C ɢ C G C G C G ■

:

3 — G G G ᴗ C G G G G : G G ((C G G G ■

:

4 — G G / o G t G G – G T G : G) G Ͻ G U C G G O ■

:

5 — M M M Y ǁ m m M M : M M I ⱽ M M M M ■

:

6 — M M – o M p M M a M O M : M ʌ M W M W M W M W ■

:

7 — F F F ᴱ Γ F F F F : F F I F F F F F ■

:

8 — F F o F F p / F s F O F : F L F Ł F Ł F E F E ■

:

9 — c c c ᶜ ᴗ ᶜ c c c : c c (c c c c c ■

:

10 — c c A X c c – c c R c X : c ͻ c ᴗ c ∩ c ͻ c o ■

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11 — g g g a ȷ a g g g : g g (ç ç g g g ■

:

12 — g g X g – A g g / g D g : g ᴗ g ᴗ g ȷ g ȷ g j ■

:

13 — m m m n ᵐ n n m m : m m r n m m m m ■

:

14 — m m S o m m X m – m m R : m v m v m w m w m w ■

:

15 — f f f ᶠ ſ ᶠ ſ f f : f f ⁺ † f f f f ■

:

16 — f f p – f O f f Z f f X : f n f n f n f h f h ■

■

:

1 — W W W ʌ U W w W W : W W l ⱶ k W W W ■

:

2 — W W o W W p s W – W C W : W ł W ł W ʌ W ʌ W N ■

:

3 — P P P I ᴾ P P P P : P P I F Γ P P P ■

:

4 — P P o P – P s P a r P P : P ʞ P ĸ P ĸ P R P R ■

:

5 — K K K I ‹ K K K K : K K I ⱶ K K K K ■

:

6 — K K a r K – K K O K s K : K ᴾ K P K P K R K R ■

:

7 — Q Q Q O ɥ ᴜ Q Q Q Q : Q Q (C Ç Q Q Q ■

:

8 — Q Q / Q -- X Q Q s Q H Q : Q ɔ Q ɔ Q ɔ Q ɔ Q C ■

:

9 — w w w v v ʌ w w w : w w ι v ʌ w w w ■

:

10 — w w X A w / w w R w — w : w r w r w ṁ ṁ w m w ■

:

11 — p p p I ᴅ ı ᴘ p p : p p ı ɫ ɫ p p p ■

12 — p p A p p R p – p p X o : p ‹ p c p c p c p o ■

:

13 — k k k I ‹ k k k k : k k I ⱶ k k k k ■

:

14 — k k O k k – C k 5 / k k : k ı k r k r k r k r ■

:

15 — q q q o ɕ ç q q q : q q ‹ c o q q q ■

:

16 — q q X ɥ q S q 2 q – q / : q ‹ q c q c q c q o ■

■

UNIT 15 - REMEDIATION
Lesson 2: Alphabet (W,P,K,Q)

Elementary Level

:

1 — Y Y Y ᵛ ı Ẏ Y Y Y : Y Y \ \ Y Y Y Y ■

:

2 — Y Y o s Y – Y Y 8 Y T Y : Y ᴾ Y R Y R Y R Y R ■

:

3 — B B B I 3 K C B B : B B I [E B B B ■

:

4 — B B – o B p B B a / B B : B = B ᴇ B E B E B E ■

:

5 — V V V \ / V V V V : V V ' \ \ V V V ■

:

6 — V V – 8 V 9 o V V s V V : V ᴺ V N V N V N V N ■

:

7 — y y y v / y y y y : y y . y y y y y ■

:

8 — y y R S y y – y 0 y 2 y : y ⌒ y a y a y q y q ■

:

9 — b b b l o b ɔ b b : b b l t t b b b ■

:

10 — b b X b X b – b b T b A : b l b J b d b d b d ■

:

11 — v v v \ / v v v v : v v \ v v v v v ■

:

12 — v v – S v T v v 0 v D v : v r v ⌒ v ɔ v ᴖ v o ■

■

:

1 — J J J ' J ᴗ ᴗ J J : J J ˎ ᴗ J J J J ■

:

2 — J J s X J J W J – J o J : J ᴗ J L J L J U J U ■

:

3 — X X X \ / ʌ ᵛ X X : X X ; › Y X X X ■

:

4 — X X – X X O X s X C X a : X ı X / X Y X Y X Y ■

:

5 — Z Z Z ż ⁄ ⁊ ż Z Z : Z Z ; ż Z Z Z Z ■

:

6 — Z Z p a Z O – Z Z 6 Z Z : Z ˎ Z ɔ Z S Z ʕ Z S ■

:

7 — j j j ⁱ ȷ ĵ ȷ j j : j j ˎ ˛ j ˛ j j ■

:

8 — j j X A j – j j O j R j : j ' j ˥ j 1 j 1 j 1 ■

:

9 — x x x \ / ⁄ ˎ x x : x x ; › › x x x ■

:

10 — x x O x R x B x – x x T : x v x w x w x w x w ■

:

11 — z z z ⁼ / ⁊ ż z z : z z ; ; z z z z ■

:

12 — z z O S z z T z – z A z : z ɔ z s z ‹ z ς z s ■

■

:

1 — A B A Ρ R A B A A B : B A B Λ B Λ B Λ B A ■

:

2 — A B A A B A B B A B ■

:

3 — A R A ᴾ A P A R R A : R A R Λ R Λ R Λ A R ■

:

4 — R A A R A R R A R A ■

:

5 — a e a c a c a c a e : e a e ˥ e ɜ e a a e ■

:

6 — a e a e e a a e a e ■

:

7 — a h a ŀ a ŀ a ḥ h a : h a h ɑ h ɑ h a h a ■

:

8 — h h a h a h a a a h ■

:

9 — a n a ɾ a ɾ a r n a : n a n ɑ n ɑ n a n a ■

:

10 — a n n a a n n a n a ■

:

11 — a s a ᶜ a ᶜ a ᶜ a s : s a s ɑ s a s a a s ■

:

12 — a a s a s s s a s a ■

:

13 — B E B E B E B F E B : E B E 3 E 3 E 3 B E ■

:

14 — B E B B E B E E B E ■

:

15 — B F B F B Γ B F B F : F B F 3 F 3 F B B F ■

:

16 — F F B F B F F B B B ■

■

:

17 — B H B ⁞⁞ B H B H B H : H B H 3 H B H 3 H B ■

:

18 — B H H B H B H B B H ■

:

19 — B P B ⊦ B I' B F B P : P B P 3 P 3 P 3 P B ■

:

20 — P B P B P P B P B B ■

:

21 — B R B k B R B k B R : R B R b R B R b R B ■

:

22 — B B R B R R R B B R ■

:

23 — b d b a b ȧ b ȧ b d : d b d o d ȯ d ȯ b d ■

:

24 — b d b d d b d b b d ■

:

25 — b h b n b ṅ b ṅ h b : h b h o h ȯ h ȯ h b ■

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26 — h b b h b h h h b b ■

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27 — C D C) C Ↄ C D D C : D C D ᴗ D ᴗ D ᴗ C D ■

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28 — C C D C D C D D C D ■

:

29 — C G C ᴗ C G C G G C : G C G ᴗ G ᴗ G ᴗ C G ■

:

30 — C G C G G C G C C G ■

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31 — C Q C ∩ C Ɂ C Ɂ C Q : Q C Q ᴗ Q ᴗ Q ᴗ Q C ■

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32 — Q Q C Q C C Q C Q C ■

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33 — c e c ^ c e e c c e : e c e ^ e c e c c e ■
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34 — e c e e c e c e c c ■
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35 — c o c ) c o c o c o : o c o : o : o : c o ■
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36 — o o c o c c o c o c ■
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37 — c r c ı c r c r r c : r c r ᴗ r : : r r c ■
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38 — c r c r r c r : c r ■
:
39 — c t c ⁺ c t c t c t : t c t ⁻ t c t c c t ■
:
40 — t t t c t c c t c c ■
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41 — D O D ( D ( D ( O D : O D O I O L O L D O ■
:
42 — O D D O D O O D O D ■
:
43 — D U D " D U D " D U : U D U ⁿ U Г U D D U ■
:
44 — D D U D U U Г U U D ■
:
45 — d h d ! d h d h h d : h d h a h a h d d h ■
:
46 — d d h d h h d h d h ■
:
47 — d o d ^ d n d ɔ o d : o d o 1 o d o d d o ■
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48 — o d o o d o d d o d ■
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49 — E G E G E G E G E G : G E G E G E E G G E ■

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50 — E G E E G E G G E G ■

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51 — E R E R E R R E E R : R E R E R E R E E R ■

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52 — E R R E R E E R E R ■

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53 — E S E S E S E S E S : S E S E S E S E S E ■

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54 — E S E S E E S E S S ■

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55 — e g e g e g e g g e : g e g c g c g c g e ■

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56 — e g e g g e e g g e ■

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57 — e r e r e r e r e r : r e r c r c r c r e ■

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58 — e r r e e r e r r e ■

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59 — e o e o e o e o e o : o e o e o e o e e o ■

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60 — e e o e o o o e e o ■

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61 — e s e s e s e s s e : s e s c s e s c e s ■

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62 — e s e e s s e s s e ■

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63 — F f F f F f F f f F f F f f f f F f f F ■

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64 — F F f F f f F F f f ■

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65 — F P F ᴾ F ᴾ F ʔ P F : P F P Γ P Γ P F F P ■

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66 — F P P F F P F P P F ■

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67 — f t f ւ f ւ f ŧ f t : t f t ⸢ t Γ t Γ f t ■

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68 — t f t t f t f f t f ■

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69 — H M H ᴹ H ᴹ H ᴹ H M : M H M ʜ M ʜ M ʜ M H ■

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70 — M M H M H H M H H M ■

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71 — H N H ∖ H ∖ H ᴺ H N : N H N ʜ N ʜ N ʜ H N ■

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72 — H N H N N H N H H N ■

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73 — h k h ‹ h ĸ h ĸ h k : k h k ˥ k ∩ k ∩ k h ■

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74 — k k h k h h k h k h ■

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75 — h t h ւ h ι h ι h t : t h t ∩ t ∩ t ∩ t h ■

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76 — t h t h h t h t t h ■

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77 — I l I ı I ı I ı l I : l I l ɪ l ɪ l ɪ l I ■

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78 — I I l l l I I l l I ■

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79 — I T I ⁻ I ⁻ I ⊤ I T : T I T ı T ı T ı T I ■

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80 — I T T I I T T I I T ■

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81 — i j i ˬ i ˬ i ȷ i j : j i j ı j ı j ı j i ■

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82 — i i j i j j i i j j ■

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83 — K ⊦ K ⱪ K ƙ K k K k : k K k ı k K k K k K ■

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84 — k k K k K K k K K k ■

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85 — K R K ᴾ K P K P K R : R K R ıʹ R ⱪ R K R K ■

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86 — R R K R K K R K R K ■

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87 — L I L ˌ L ı L ı L I : I L I ⌊ I L I L I L ■

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88 — I L L I L I I L L I ■

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89 — M N M ᵥ M ˏ M ɴ M N : N M N ᵛ N ᴹ N M N M ■

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90 — M N N M N M M N M N ■

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91 — M W M ʌ M ʷ M W M W : W M W ᵛ W ᴹ W M W M ■

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92 — W W M W M M W M M W ■

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93 — N W N ʷ N W N W N W : W N W ˎ W N W N W N ■

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94 — N W N N W N W W N W ■

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95 — O Q O ˬ O ˬ O Q Q O : Q O Q ᴗ Q ɔ Q O Q O ■

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96 — O O Q O Q Q O Q O Q ■

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97 — O S O ⸌ O ˤ O ʕ O S : S O S (S (S ᑦ S O ■

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98 — O S O S S O S O O S ■

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99 — P R P ₙ P ʰ P R P R : R P R ⱶ R ⱶ R ᵽ R P ■

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100 — P R P R R P R R P P ■

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101 — Q U Q ˮ Q ˮ Q ˮ Q U : U Q U ᵔ U ʔ U ʔ U Q ■

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102 — U U Q U Q Q U Q U Q ■

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103 — R S R ᴗ R ɔ R Ꞩ R S : S R S ⱶ S ʀ S ʀ S R ■

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104 — R S R S R R S R S S ■

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105 — r t r ι r ι r ι r t : t r t ı t ɼ t ɼ t r ■

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106 — r t t r t r r t r t ■

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107 — U V U ᵥ U \ U \ U V : V U V ᴗ V ᵤ V ᒪ V U ■

:

108 — V U V V U U V U V U ■

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109 — V W V ʷ V ʷ V ʷ V W : W V W ᵥ W ᵥ W \ W V ■

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110 — V V W V W W V W W V ■

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111 — V Y V ı V ʏ V ˇ V Y : Y V Y ᵥ Y \ Y \ Y V ■

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112 — V V Y V Y Y V Y V Y ■

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113 — v w v w v w v w v w : w v w v w v w v w v ■
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114 — v w v w v w w w v v ■
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115 — X x X x X x X x X x : x X x X x X x X x X ■
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116 — x x X x X x X X X x ■
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117 — Y y Y y Y y Y y Y y : y Y y Y y Y y Y y Y ■
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118 — Y Y y Y y y Y y y Y ■
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119 — Z z Z z Z z Z z Z z : z Z z Z z Z z Z z Z ■
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120 — z Z Z z z Z Z z z Z ■
■
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